POLYCOM®

ViewStation FX/VS4000
User Guide

Important Information

Warning

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Other Restrictions

You shall not and shall not allow any third party to 1) decompile, disassemble, or otherwise reverse-engineer or attempt to reconstruct or discover any source code or underlying ideas or algorithms of the software by any means whatsoever or 2) remove any product.

Trademark Information

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Patent Information

The accompanying product is protected by one or more U.S. and foreign patents and patents pending held by Polycom, Inc.

Warranty

Polycom, Inc. warrants its products to be free of defects in materials and factory workmanship for a period of thirty-six (36) months from date of purchase. This warranty does not apply to damage to products resulting from accident, misuse, service or modification by anyone other than a Polycom, Inc. authorized service facility/dealer. The warranty is limited to the original purchaser and is not transferable. Any liability of Polycom, Inc. or its suppliers with respect to the product or the performance thereof under any warranty, negligence, strict liability or other theory will be limited exclusively to product repair or replacement as provided above. Except for the foregoing, the product is provided "as is" without warranty of any kind including without limitation, any warranty of merchantability or fitness for a particular purpose. The entire risk of the quality and performance of the software programs contained in the system is with you.

Limitation of Remedies and Damages

Polycom, Inc., its agents, employees, suppliers, dealers and other authorized representatives shall not be responsible or liable with respect to the product or any other subject matter related thereto under any contract, negligence, strict liability or other theory for any indirect, incidental, or consequential damages, including, but not limited to loss of information, business, or profits.

The law of certain states or nations does not permit limitation or exclusion of implied warranties and consequential damages, so the above limitations, disclaimers, or exclusion may not apply to

you. This warranty gives you special legal rights. You may also have other rights that vary by state and nation.

Important Safeguards

Read and understand the following instructions before using the system:

- Close supervision is necessary when the system is used by or near children. Do not leave unattended while in use.
- Only use electrical extension cords with a current rating at least equal to that of the system.
- Always disconnect the system from power before cleaning and servicing and when not in use.
- Do not spray liquids directly onto the system when cleaning. Always apply the liquid first to a static free cloth.
- Do not immerse the system in any liquid or place any liquids on it.
- Do not disassemble this system (except as instructed in the manufacturer's instructions). To reduce the risk of shock and to maintain the warranty on the system, a qualified technician must perform service or repair work.
- Connect this appliance to a grounded outlet.
- In case of lightning storms, disconnect the telephone line cord from the system, and only connect the system to surge protected power outlets.
- Keep ventilation openings free of any obstructions.
- SAVE THESE INSTRUCTIONS.

USA and Canadian Regulatory Notices

FCC Notice

Class A Digital Device

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

In accordance with Part 15 of the FCC rules, the user is cautioned that any changes or modifications not expressly approved by Polycom Inc. could void the user's authority to operate this equipment.

The socket outlet to which this apparatus is connected must be installed near the equipment and must always be readily accessible.

Part 15 FCC Rules

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

1) This device may not cause harmful interference, and 2) this device must accept any interference received, including interference that may cause undesired operation.

Part 68 FCC Rules

This equipment complies with part 68 of the FCC rules. Please refer to the labeling on the equipment for the following information. If requested, provide this information to your telephone company.

- Registration number
- Ringer equivalence (REN)
- Grantee's name
- Model number
- Serial number and/or date of manufacture

- Country of origin

This equipment may not be used on a public coin service provided by the telephone company. Connection to party lines is subject to state tariffs. Contact your state public utility commission or corporation commission for information.

If you experience trouble with your equipment, disconnect it from the telephone line to determine if the registered equipment is malfunctioning. If this is the case, disconnect the equipment until the problem has been corrected.

If your ViewStation FX or VS4000 causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. However, if advance notice is not practical, you will be notified as soon as possible. You will be advised of your right to file a complaint with the FCC if you believe it is necessary.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of your equipment. If they do, you will be given advance notice so as to give you an opportunity to maintain uninterrupted service.

The REN is useful to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs of all devices that may be connected to a line, is determined by the total RENs, contact the local telephone company.

FCC compliant telephone cords and modular plugs are provided with this equipment. This equipment is designed to be connected to the telephone network or premises' wiring using a compatible modular jack, which is Part 68 compliant. See installation instructions for details.

Industry Canada (IC)

This class A digital apparatus complies with Canadian ICES-003.

Cet appareil numerique de la classe A est conforme a la norme NMB-003 du Canada.

The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The Ringer Equivalence Number (REN) assigned to each relevant terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the RENs of all the devices does not exceed 5.

EEA Regulatory Notices

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Installation Instructions

Installation must be performed in accordance with all relevant national wiring rules.

Plug Acts as Disconnect Device

The socket outlet to which this apparatus is connected must be installed near the equipment and must always be readily accessible.

CE Mark R & TTE Directive

This VIEWSTATION FX/VS4000 has been marked with the CE mark. This mark indicates compliance with EEC Directives 89/336/EEC, 73/23/EEC 1999/5/EC. A full copy of the Declaration of Conformity can be obtained from Polycom Ltd., 270 Bath Road, Slough UK SL1 4DX.

Declaration of Conformity:

Hereby, Polycom Ltd. declares that this VIEWSTATION FX/VS4000 is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Konformitetserklæring:

Hermed erklærer Polycom Ltd., at indestående VIEWSTATION FX/VS4000 er i overensstemmelse med de grundlæggende krav og de relevante punkter i direktiv 1999/5/EF.

Konformitätserklärung:

Hiermit erklärt Polycom Ltd., dass der VIEWSTATION FX/VS4000 die grundlegenden Anforderungen und sonstige maßgebliche Bestimmungen der Richtlinie 1999/5/EG erfüllt.

Δήλωση Συμμόρφωσης:

Δια του παρόντος, η εταιρεία Polycom Ltd. δηλώνει ότι η παρούσα συσκευή (δρομολογητής) VIEWSTATION FX/VS4000; πληροί τις βασικές απαιτήσεις και άλλες βασικές προϋποθέσεις της Οδηγίας 1999/5/ΕΚ.

Vaatimustenmukaisuusvakuutus:

Polycom Ltd. vakuuttaa täten, että VIEWSTATION FX/VS4000 on direktiivin 1999/5/EC keskeisten vaatimusten ja sen muiden tätä koskevien säännösten mukainen.

Déclaration de conformité:

Par la présente, Polycom Ltd. déclare que ce VIEWSTATION FX/VS4000 est conforme aux conditions essentielles et à toute autre modalité pertinente de la Directive 1999/5/CE.

Dichiarazione di conformità:

Con la presente Polycom Ltd. dichiara che il VIEWSTATION FX/VS4000 soddisfa i requisiti essenziali e le altre disposizioni pertinenti della direttiva 1999/5/CE.

Verklaring van overeenstemming:

Hierbij verklaart Polycom Ltd. dat diens VIEWSTATION FX/VS4000 voldoet aan de basisvereisten en andere relevante voorwaarden van EG-richtlijn 1999/5/EG.

Declaração de Conformidade:

Através da presente, a Polycom Ltd. declara que este VIEWSTATION FX/VS4000 se encontra em conformidade com os requisitos essenciais e outras disposições relevantes da Directiva 1999/5/CE.

Declaración de conformidad:

Por la presente declaración, Polycom Ltd. declara que este VIEWSTATION FX/VS4000 cumple los requisitos esenciales y otras cláusulas importantes de la directiva 1999/5/CE.

Överensstämmelseförklaring:

Polycom Ltd. förklarar härmed att denna VIEWSTATION FX/VS4000 överensstämmer med de väsentliga kraven och övriga relevanta stadganden i direktiv 1999/5/EG.

CE Mark LVD and EMC Directive

This VIEWSTATION FX/VS4000 has been marked with the CE mark. This mark indicates compliance with EEC Directives 89/336/EEC and 73/23/EEC. A full copy of the Declaration of Conformity can be obtained from Polycom Ltd, Whichford House, Parkway Court, Oxford Business Park South, Oxford, OX4 2JY, UK.

Underwriters Laboratories Statement

The system is intended to be powered only by the supplied power supply unit.

Omnitel Statement

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VideoServer Statement

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Getting Started

In this chapter, you will learn how to quickly set up your system and use its basic features.

For the latest information about the software on your system, refer to the *ViewStation FX* or the *VS4000 Read Me First*.

What's in the Box?

The following section describes the contents of the ViewStation FX and VS4000 shipping containers:

ViewStation FX

The following items are included in the ViewStation FX box:

- *Read Me First*
- *ViewStation FX QuickStart*
- ViewStation FX unit
- 2 microphone pods
- 1 power supply and cord
- 1 remote control
- Required cables bag with:
  - 2 RJ-9 microphone cords (brown)
  - 1 S-video/triple RCA monitor cable (yellow, white, and red)
  - 1 RJ-45 keyed cable for connection to the network interface module (light blue)
- Optional equipment cables bag with:
  - 1 RJ-11 telephone cord (pink), where approved
  - 2 S-video cables for additional monitors or a document camera (yellow)
  - 1 RCA cable for connection to an audio mixer (black)

- • 1 RJ-45 cable for connection to the LAN (orange)
- • 1 RJ-45 cable for connection to a PC (blue)
- • 2 triple RCA cables for connection to a VCR (yellow, white, and red)
- • Optional equipment cables bag with:
  - • 1 DB-15 XGA cable for connection to an additional monitor or projector
  - • 1 DB-9 serial port cable for connection to a touch panel
  - • 1 pan/tilt/zoom camera cable
- • Optional network interface module (shipped separately)

VS4000

The following items are included in the VS4000 box:

- • *Read Me First*
- • *VS4000 QuickStart*
- • VS4000 unit
- • 2 rack-mount brackets with screws
- • 2 microphone pods
- • 1 power cord
- • 2 remote controls
- • 1 remote control infrared (IR) detector
- • 1 network interface module (If you ordered the H.323 version of the VS4000, you do not receive a network interface module.)
- • Monitor cables bag with:
  - • 4 S-video cables (yellow)
  - • 4 single RCA cables (yellow)
  - • 1 DB-15 XGA cable for connection to an additional monitor or projector
- • Video cables bag with:
  - • 3 S-video cables (yellow)
  - • 3 single RCA cables (yellow)
- • Serial/audio cables bag with:
  - • 1 DB-9 serial port cable for connection to a touch panel device

- • 2 pan/tilt/zoom camera cables
- • 2 triple RCA cables for connection to a VCR (yellow, white, and red)
- • 1 RCA cable for connection to an audio mixer (black)
- • 1 double RCA cable
- • RJ cables bag with:
  - • 2 RJ-9 microphone cords (brown)
  - • 1 RJ-45 keyed cable for connection to the network interface module (light blue)
  - • RJ-11 telephone cord (pink), where approved
  - • 1 RJ-45 cable for connection to the LAN (orange)
  - • 1 RJ-45 cable for connection to a PC (blue)

Network Interface Module

The ViewStation FX or VS4000 may also include one of the following network interface equipment(s) (as specified by the user):

- • V.35 network interface:
  - • V.35 module
- • PRI network interface:
  - • PRI module
  - • Cables (1 RJ-45, 1 power supply cable)
- • Quad BRI network interface:
  - • Quad BRI Inverse Multiplexer (IMUX)
  - • 4 RJ-45 cables
  - • 1 RJ-45 cable with a keyed connector

Remote Control

The remote control is an integral part of the system. You can use the remote control to configure and operate the ViewStation FX or VS4000. Once you have the system set up and running, press the yellow INFO button on the remote control for a basic description of the remote control buttons.

Microphone Pods

The microphone pods provide digital audio input to the ViewStation FX and the VS4000.

Each microphone pod has an audio range of approximately 30 feet (9-meters) and provides automatic gain control, noise suppression, and echo cancellation. You can press the MUTE button on the microphone to silence your end of the call. When the MUTE button is lighted, your end of the call is muted.

A second microphone pod provides enhanced audio pickup for all ViewStation models, except the ViewStation SP. Your ViewStation FX or VS4000 supports a maximum of two microphone pods daisy-chained together.

Connect the 30-foot (9-meter) cable to the ViewStation FX or VS4000 and one of the microphones pods. Connect the 10-foot (3-meter) cable between the two microphone pods.

What You Need to Get Started

Network Interfaces

The following information only applies if you are using a network interface with your ViewStation FX or VS4000. It lists network equipment or access requirements for each network interface.

V.35 network interface: you need access to your Data Communications Equipment (DCE) or Data Service Unit (DSU).

PRI network interface: you need to order a PRI line from your service provider.

Quad BRI network interface: you need to order a BRI line from your service provider.

H.323 network interface: you need to be able to access to your Local Area Network (LAN).

Television Monitors

You can use the ViewStation FX or VS4000 with four television monitors and a VGA monitor that operates at 75 Hz or higher with a resolution of 800 x 600, 1024 x 768, or 1280 x 1024.

The ViewStation FX can use any S-video or composite television monitor as the primary monitor. The other three monitors have to be S-video. With the VS4000, all four monitors can be composite.

The size of the monitor should be proportional to the size of the room where video conferences take place.

Power Source

The ViewStation FX has an external power supply and the VS4000 has an internal power supply. They support line voltages between 100V and 240V or 50 Hz and 60 Hz.

Warning   You void the warranty and may possibly damage your ViewStation FX if you do not use the provided power supply.

Cameras

The VS4000 is compatible with many S-video or composite video cameras. For pan/tilt/zoom capability, you must use a Sony EVI-D30, EVI-D31, EVI-D30L, or EVI-D31L.

Caution   The camera is controlled with the remote control that is shipped with the ViewStation FX or VS4000. Manually adjusting the camera can damage the unit.

> **Note**   The ViewStation FX *only* supports Polycom wide-angle lenses. Attaching a third-party vendor wide-angle lens can cause damage that is not covered by the product warranty. Third-party lenses may rub against the ViewStation FX enclosure when the camera is reset. You can purchase a Polycom wide angle lens adapter from your distributor or from the Polycom Store at **www.polycom.com.**

NT-1 Device

An ISDN network termination (NT-1) device may be required between your ISDN line and the ViewStation. If your ViewStation is not connected to an internal switchboard, such as a PBX, your system may require an ISDN termination resistor to be installed.

Equipment Installation

The following sections describe how to set up the following equipment:

- ViewStation FX
- VS4000
- Network interface modules (V.35, PRI, and BRI)

ViewStation FX

To connect your cables and equipment to the back of the ViewStation FX, follow these instructions:

1. Place the ViewStation FX on top of the television monitor with the front lip overhanging the top of the television monitor.

2. Place the microphone pods on a flat surface between the meeting participants and the television monitors. Do not place the microphone pods near the television monitor speakers.

3. Connect the required equipment and cables to the back of your ViewStation FX as shown in the *ViewStation FX QuickStart*.

4. Connect any optional equipment to the back of your ViewStation FX as shown in the *ViewStation FX QuickStart*. Optional equipment can include a PC, VCR, telephone, audio mixer, document camera, XGA projector or monitor, secondary pan/tilt/zoom camera, or additional television monitors.

Note   The colors on the cables match the colors on the back of the ViewStation FX.

5. To prevent cable entanglement, wrap the enclosed cable tie around all of the cables.

6. Put the batteries in the remote control.

You are now ready to set up your network interface. See "Network Interface Module," on page 3 for additional information.

VS4000

To connect your cables and equipment to the back of the VS4000, follow these instructions:

1. Attach the VS4000 unit to your rack using the provided brackets and screws.

2. Place the microphone pods on a flat surface between the meeting participants and the television monitors. Do not place the microphone pods near the television monitor speakers.

3. Place the IR detector in a location that is in the line of sight of the meeting participants, such as on top of a television monitor.

4. Connect the required cables and equipment to the back of your VS4000 as shown in the *VS4000 QuickStart*.

Notes The colors on the cables match the colors on the back of the VS4000.

The camera must be attached to the VS4000 unit prior to power-on. Failure to do so may result in your VS4000 not recognizing the proper camera attached to the unit.

5. Connect any optional equipment to the back of your VS4000 as shown in the *VS4000 QuickStart*. Optional equipment can include a PC, VCR, telephone, audio mixer, document camera, XGA projector or monitor, secondary pan/tilt/zoom camera, or additional television monitors.

6. To prevent cable entanglement, wrap the enclosed cable tie around all of the cables.

7. Put the batteries in the remote controls.

You are now ready to set up your network interface.

Network Interface Modules

This section explains how to install the following network interfaces:

- V.35
- PRI
- BRI

V.35 Network Interface Setup

To connect a V.35 network interface module to your ViewStation FX or VS4000, follow these instructions.

Connecting the V.35 Network Interface Module to the FX or VS4000

1. Make sure your ViewStation FX or VS4000 is turned off.

2. Insert one end of the light blue keyed cable into the light blue port on the back of the FX or VS4000. The cable has special RJ-45 connectors that are not interchangeable with normal RJ-45 connectors.

3. Insert the other end of the light blue RJ-45 cable into the input port labeled ⊖← on the network interface module.

Figure 1-1 shows the peripheral link (P-LINK) side of the network interface module that connects to the ViewStation FX or VS4000.

Figure 1-1. V.35 Network Interface Module (P-LINK side)

Connecting the V.35 Network Interface Module to the V.35 DCE

The V.35 network interface module contains two HD-44 female ports (labeled 1 and 2) that connect to the data communications equipment (DCE). To connect to the network devices:

1. Connect the HD-44 male cable ends to ports 1 and 2 on the network interface module. If you want to connect only one cable, connect to port 1 on the interface module.

2. Tighten the screws on the connectors.

3. Connect the remaining cable ends to the DCE's V.35/RS-449 port and the DB-25 RS-366 dialing port, if used. If you are connecting only one cable, connect to the lowest ordered port on your DCE.

4. Tighten the screws on the connectors.

5. Power on the television monitor.

6. Power on the ViewStation FX or VS4000. Once you power up the system, there is a 20-second delay before you see the Polycom logo.

7. Once your interface is properly connected, you are ready to configure your ViewStation FX or VS4000. Proceed to "Initial System Configuration," on page 17.

Figure 1-2 shows the NETWORK side of the V.35 network interface module.

Figure **1-2**. V.35 Network Interface Module (NETWORK side)

Special Information

V.35 Module Interchangeability. The ViewStation FX or VS4000's V.35 network interface module is not interchangeable with the previous V.35 network interface module. The new module uses HD-44F connectors (ports 1 and 2), and uses a keyed RJ-45 connector for the serial link to the back panel of the ViewStation FX or VS4000. An HD-44M to DB-25F adapter cable is available as an option to connect existing V.35 network cables, if necessary.

Cable Information. For connection to your DCE, Polycom offers the following optional cables:

•   V.35 "Y" cable—HD-44M to DB-25M/RS-366 and M34 "Winchester" V.35

•   RS-449/422 "Y" cable—HD-44M to DB-25M/RS-366 and DB-37M/RS-449/422

•   Ascend cable—HD-44M to HD-44M

Cable drawings and pinout information for these cables are available in the *V.35 Technical Information* Appendix.

V.35 Cable Adapter Kit. You can also purchase an additional cable adapter kit (available through your reseller) to extend the distance between your ViewStation FX or VS4000 and the V.35 network interface module.

V.35 and RS-366 Connections. The V.35 connection on the V.35 cable is used for data and the RS-366 connection is used for dialing. If you plan to place 2 x 56 Kbps or 2 x 64 Kbps calls, use one cable for each port.

Note   If your DCE does not use dialing, do not use the RS-366 (DB-25M) connector.

LED Information

Please refer to "LEDs," on page 213.

PRI Network Interface Setup

The following information applies to both the PRI E1 and the PRI T1 network interfaces. The instructions explain how to connect the PRI network interface module to your ViewStation FX or VS4000 system

Connecting the PRI Network Interface Module to the FX or VS4000

1. Power off your ViewStation FX or VS4000.
2. Plug the 12-volt DC power supply into the PRI network interface module and then into the wall jack.

Notes   As a precautionary measure to avoid losing the PRI signal when the ViewStation FX or VS4000 is powered off, the PRI network interface should be connected to the provided external 12-volt DC power supply. Failing to do will result in the PRI line going into red alarm.

The external 12-volt DC power supply is *always* required in European countries.

For more information about the external 12-volt DC PRI power supply, refer to "External Power Supply," on page 226.

3. Connect one end of the light blue keyed RJ-45 cable to the connector labeled ⊷ on the PRI network interface module.

4. Connect the other end of the light blue keyed RJ-45 cable to the blue keyed RJ-45 interface jack port on the back of the ViewStation FX or VS4000.

Figure 1-3 shows the peripheral link (P-LINK) side of the PRI network interface module that connects to the ViewStation FX or VS4000.
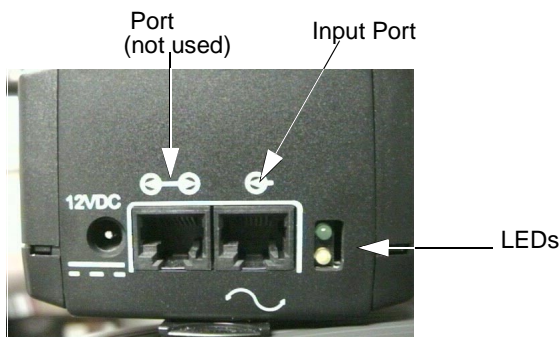
Figure 1-3. PRI Network Interface Module (P-LINK side)

Connecting the PRI Network Interface Module to the PRI Network

To connect the network interface module to the ISDN PRI network:

1. Attach your existing RJ-45 network cable from your ISDN PRI network to the connector labeled NETWORK on the PRI network interface module.

2. Power on the television monitor.

3. Power on the ViewStation FX or VS4000. Once you power up the system, there is a 20-second delay before you see the Polycom logo.

4. Once your interface is properly connected, you are ready to configure your ViewStation FX or VS4000. Proceed to "Initial System Configuration," on page 17.

Figure 1-4 shows the NETWORK side of the PRI network interface module that connects to the ISDN PRI network.

NETWORK
Connector

LEDs
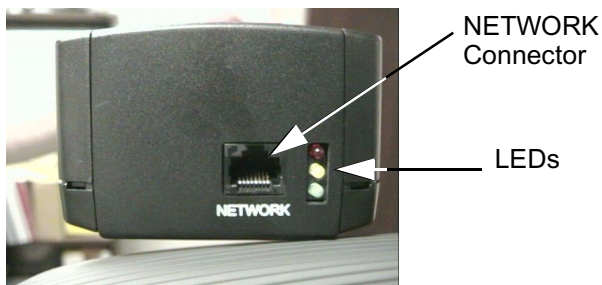
Figure 1-4. PRI Network Interface Module (NETWORK side)

Special Information

Crossover Cable. An RJ-45 crossover cable might be required when connecting the PRI network interface module to a PBX or another third-party network access device.

External PRI Power Source. Please carefully read the Notes under item 3 in "Connecting the PRI Network Interface Module to the FX or VS4000," on page 11.

External CSU. If you are using an external CSU (North America T1 only), connect an RJ-45 cable from the CPE equipment side of the CSU to the PRI network interface module.

PRI Cable Adapter Kit. You can also purchase an additional cable adapter kit (available through your reseller) to extend the distance between your ViewStation FX or VS4000 and the PRI network interface module.

LED Information

Please refer to "LEDs," on page 226.

Quad BRI Network Interface Setup

These instructions explain how to connect the Quad BRI network interface module to your ViewStation FX or VS4000 system.

Connecting the Quad BRI Network Interface Module to the FX or VS4000

1.   Make sure your ViewStation FX or VS4000 is turned off.

2.   Find the cable with the light blue RJ-45 keyed connector on one end and the green RJ-45 (non-keyed) connector on the other end.

3.   Insert the light blue RJ-45 keyed connector into the light blue RJ-45 keyed port on the back of the ViewStation FX or VS4000.

4.   Insert the green (non-keyed) RJ-45 connector into the green RJ-45 port labeled ⌒ on the network interface module.

Figure 1-5 shows the peripheral link (P-LINK) side of the Quad BRI network interface module that connects to the ViewStation FX or VS4000.
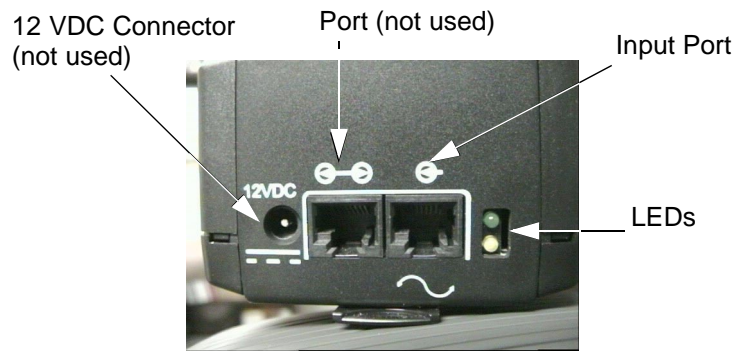

Figure 1-5. Quad BRI Network Interface Module (P-LINK side)

Connecting the Quad BRI Network Interface Module to the BRI Network

1.   Attach your RJ-45 network cable(s) from port 1 on your ISDN BRI network to the connector labeled ISDN S/T on the Quad BRI network interface module.

2.   Power on the television monitor.

3.   Power on the ViewStation FX or VS4000. Once you power up the system, there is a 20-second delay before you see the Polycom logo.

4. Once your interface is properly connected, you are ready to configure your ViewStation FX or VS4000. Proceed to "Initial System Configuration," on page 17.

Figure 1-6 shows the network side of the Quad BRI network interface module that connects to the ISDN BRI network.

Figure 1-6. Quad BRI Network Interface Module (Network side)

Special Information

Quad BRI/IMUX. The Quad BRI is also called IMUX (for Inverse Multiplexer). With the Quad BRI, you can connect up to four ISDN lines to the video conferencing unit. The Quad BRI allows multi-line ISDN connections to be "muxed" together to create a higher bandwidth connection to the far-site device. Each ISDN line adds 128 Kbps to the possible operating line.

ISDN Lines. The ViewStation FX and VS4000 can use up to four ISDN lines. Note that the ViewStation FX and VS4000 only require a single functioning ISDN line to operate, but speeds greater than 128 Kbps require the use of additional ISDN lines.

NT-1. If you are not connected to an internal phone system, called a PBX, you will need to connect the ISDN cables from your ViewStation FX or VS4000 to the Quad BRI module, to the network termination (NT-1) device, which is connected to the ISDN wall jack.

For more information about ISDN, refer to "ISDN Information," on page 241.

Automatic Quad BRI Software Update. The Quad BRI is expected to have at least, the same level of software version as the FX or VS4000. However, if, upon reboot, the ViewStation FX or VS4000 detects an older software version on the Quad BRI, it will

automatically update the Quad BRI to the same software version. When this happens, the download is accompanied by an explanatory message. Do NOT turn off your system during the download process.

Note   If the Quad BRI has a later software version than the ViewStation FX or VS4000, there is no automatic update process.

LED Information

Please refer to "LED Activity on the Quad BRI Network Interface Module," on page 253.

Initial System Configuration

Once you have powered on the ViewStation FX or the VS4000, a series of setup screens appear on your television monitor, leading you through the initial setup process.

The initial configuration process consists of three sequential parts, which are described in the following sections:

- First System Configuration Screens (page 17).
- Network Interface Configuration Screens (for V.35, PRI, and BRI) (page 24).
- Auto Detect SPIDs Screen (page 33).

Note All procedures detailed in these sections must be followed in order to minimize system failures.

First System Configuration Screens

Welcome

The first setup screen to appear on your television monitor is the **Welcome** screen.

Figure 1-7. Welcome (Language) Screen

Select the language you would like to see on the ViewStation FX or VS4000:

1. Press the arrow buttons on the remote control to highlight a language.

2. Then press the ⬛ button on the remote control to go to the next screen. The following screen appears:
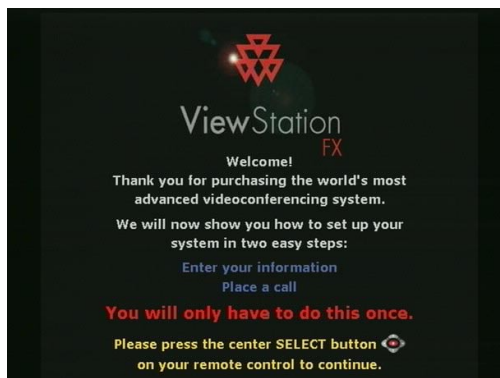
Figure 1-8. Welcome (Informational) Screen

Note   To make selections with the remote control, aim the remote control at the remote control IR detector or at the **Clarity by Polycom** logo on the front of the ViewStation FX or VS4000 unit.

How To Select Menu Items

This screen explains how to select ViewStation FX or VS4000 items on your television monitor. Press the ⬛ button on the remote control to proceed to the next screen.

Figure 1-9. How to Select Menu Items

Note   To return to a previous screen, press the MENU button on the remote control or use the arrow buttons on the remote control to highlight the **Menu** icon and press the 🔲 button on the remote control.

System Name

Use the **System Name** screen to name your ViewStation FX or VS4000. Naming your system makes it easy to find your ViewStation FX or VS4000 on the LAN when it is connected. System names can be up to 34 characters in length.
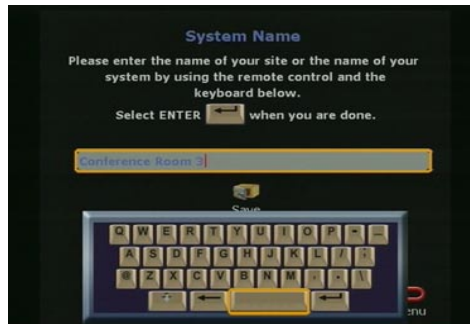
Figure 1-10. System Name Screen

Entering the System Name. To access the on-screen keyboard:

1. Press the 🔲 button on the remote control.

2. Use the arrow buttons to move around the keyboard and press the 🔲 button to select a letter.

3. When you have finished making your entries on this screen, review the entries for accuracy, then select the key ◄─┘ on the on-screen keyboard.

4. Highlight the **Save** icon and press the 🔲 button on the remote control to save the system name.

Country

On the **Country** screen, select the country in which your ViewStation FX or VS4000 is installed.

Figure 1-11. Country Screen

Call Preference

On the **Call Preference** screen, select the types of calls you can place:

- **V.35 Video Calls** or **ISDN Video Calls:**
    - V.35 Video Calls—This option is available (see left picture below) when your ViewStation FX or VS4000 is connected to a V.35 network.
    - ISDN Video Calls (H.320)—This option is available (see right picture below) when your ViewStation FX or VS4000 is connected to a PRI or BRI network.
- **LAN/Internet Calls (H.323)**—Select this option if you plan to place IP calls.
- **Display IP Dialing Extension**—This extension is needed when placing a call through a Gateway. When this option is selected, the **Extension** field is visible in the **Video Call** screen. For more information about Gateway configuration, refer to the section **"Gateway & Gatekeeper," on page 147**.
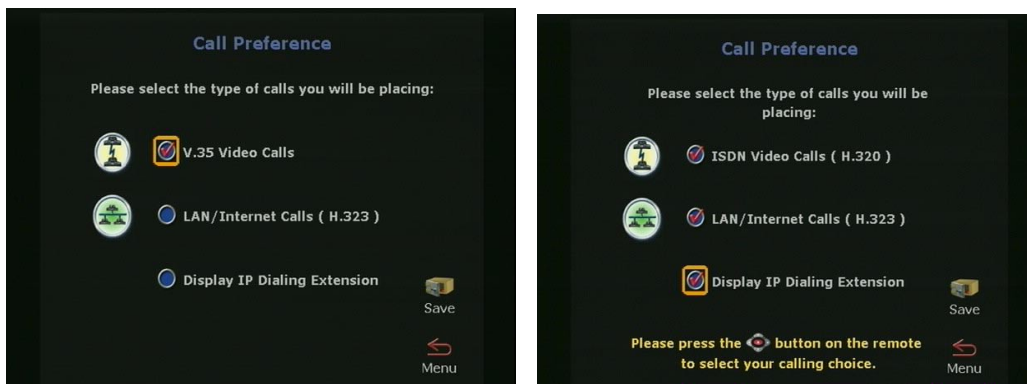
Figure 1-12. Call Preference Screens (with V.35 and ISDN Video Calls options)

When you have finished, review your selection, then highlight the **Save** icon and press the ▣ button on the remote control.

H.323 Setup

This screen appears if you have previously checked the **LAN/Internet Calls (H.323)** option in the previous screen (**Call Preference**).

The H.323 option allows you to place video calls using IP on your local area network (LAN) or wide area network (WAN). The **H.323 Setup** screen allows you to configure the H.323 name and extension that can be used to dial either your ViewStation FX or VS4000.
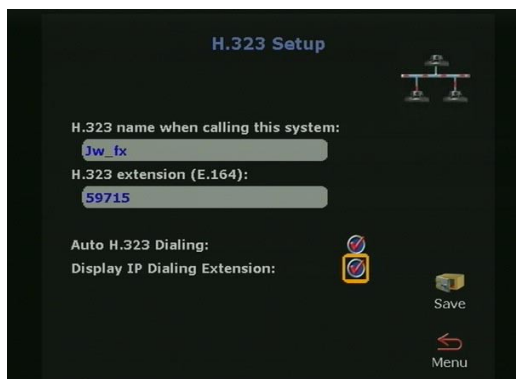
Figure 1-13. H.323 Setup Screen

H.323 Name—Your system name (previously configured in the **System Name** screen) appears as your H.323 name, but you can change it on this screen.

H.323 Extension (E.164)—You can also change the extension to a number that is easy to remember. Your administrator might have specific names and extensions. If you have a Gatekeeper installed on your network, other parties can call you by using the H.323 name or extension. The H.323 name and extension are registered with your Gatekeeper. The Gatekeeper directs the call to your system IP address.

Auto H.323 Dialing—This option is enabled by default to let the FX or VS4000 auto-detect the type of call you are placing (IP or ISDN) based on the video number format. If this option is enabled, the ISDN and H.323 fields are not visible on the **Video Phone** screen.

Display IP Dialing Extension—This option was previously configured in the **Call Preference** screen. For more information, refer to "Call Preference," on page 20.

For additional information about H.323, see "Advanced LAN/H.323 Configuration," on page 141.

When you have finished, review your entries for accuracy, then highlight the **Save** icon and press the ▭ button on the remote control.

Gatekeeper

Use the **Gatekeeper** screen to configure an H.323 Gatekeeper. For more detailed information on Gatekeeper, refer to "Gateway & Gatekeeper," on page 147.

Note   A gatekeeper is not required to make an IP-to-IP LAN call. In these situations, select the **Off** option.

Figure 1-14. Gatekeeper Screen

• **Use Gatekeeper**

   • **Off**—If you do not want to access a Gatekeeper, select this option.

   • **Specify**—To specify a Gatekeeper, select this option and enter the Gatekeeper's IP address in the **Gatekeeper IP Address** field. This information is available from your network administrator.

   • **Auto**—To have the ViewStation FX or VS4000 automatically find an available Gatekeeper, select the **Auto** option.

• **Gatekeeper IP Address**—This address is provided by your network administrator.

When you have finished, review your entry for accuracy, then highlight the **Save** icon and press the ▭ button on the remote control.

Network Interface Configuration Screens

V.35 Network Interface Configuration Screens

If you have a V.35 network interface module, the following screens are designed to help you with your v.35 configuration.

Video Network

Use the **Video Network** screen to set the parameters for your V.35 video network.
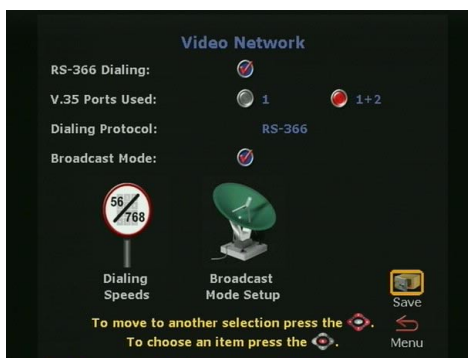
Figure 1-15. Video Network Screen

You can set the following options on this screen:

*   **RS-366 Dialing**—Enable this option if you want to call from the ViewStation FX or VS4000 through the DCE connection to the far-end video conferences system. Disable this option if you are using your DCE to dial the call or if you have a dedicated connection to the far site.

Note   If the **RS-366 Dialing** option is enabled, you need to select **Dialing Speeds** on this screen (see following *Dialing Speeds* section).

*   **V.35 Ports Used**—Select 1 if you are placing only 1-channel calls. Select 1+2 if you are placing 2 x 56 Kbps or 2 x 64 Kbps channel calls.

*   **Dialing Protocol**—RS-366 appears as the dialing protocol if the **RS-366 Dialing** option is enabled. If the **RS-366 Dialing** option is disabled, the **Dialing Protocol** does not appear.

- **Broadcast Mode**—Enable or disable H.331 **Broadcast Mode** if the ViewStation FX or VS4000 is connected to the network via satellite.

When you have finished, highlight the **Save** icon and press the ◼ button on the remote control.

Dialing Speeds

If you enabled **RS-366 Dialing**, select the **Dialing Speeds** icon in the **Video Network** screen.

1. Select the dialing speeds on this screen. The default speeds are 2 x 64 Kbps, 256 Kbps, 384 Kbps, 512 Kbps, and 768 Kbps.

2. To add or remove speeds, scroll through the data rates and press the SELECT button on the remote control to select your preferred dialing speeds; a red check appears when a dialing speed is selected.

Note   The selected dialing speeds apply only to RS-366 calls. Nx56 and Nx64 are for H.320 calls, while IPx56 and IPx64 are for H.323 calls. For non-dialed calls, the call speed is determined by the DCE.
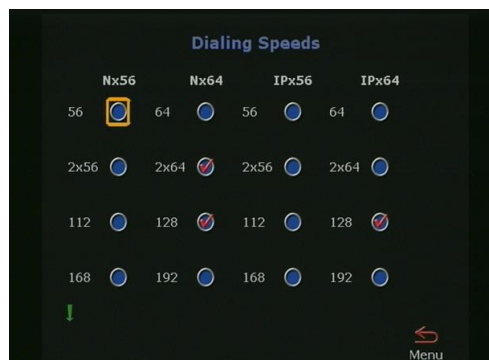
Figure 1-16. Dialing Speeds Screen

Broadcast Mode

If you enabled the **Broadcast Mode** option on the **Video Network** screen, the **Broadcast Mode Setup** icon appears. Selecting this icon takes you to the **Broadcast Mode** screen. For more information on the **Broadcast Mode** screen, refer to "Broadcast Mode," on page 122.

Advanced V.35

If you enabled **RS-366 Dialing**, the dialing prefixes and suffixes are
set for calls from the ViewStation FX and VS4000 on the **Advanced
V.35** screen.

The **Advanced V.35** screen lets you select the Calling Profile
associated with dialing through a DCE.
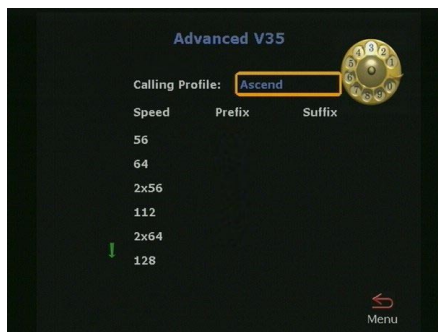
Figure 1-17. Advanced V.35 Screen (main)

Calling profiles for several manufacturers are included in the
ViewStation FX and VS4000.

1. To select and modify these profiles, select the **Calling Profile**
    field. The following calling profile list appears.
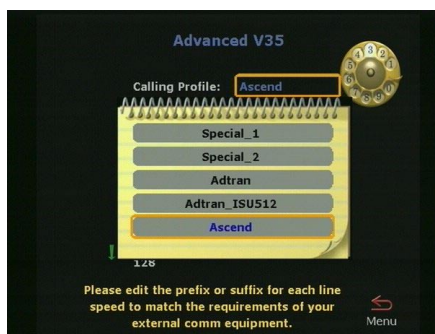
Figure 1-18. Advanced V.35 Screen (Calling Profile List)

2. Select the appropriate equipment/manufacturer for the
    drop-down list and press the SELECT button on the remote
    control.

3. When you have finished, review your entry. The Prefix or Suffix information (depending on the equipment name that you selected) is now visible on the **Advanced V.35** screen.

4. Highlight the **Save** icon and press the ⬤ button on the remote control.

Note   You have to enter this information only once on the **Advanced V.35** screen. When you place a call, there is no need to enter the prefix again—simply select the preferred dialing speed and the ViewStation FX or VS4000 enters the proper prefix.

Dialing Prefix and Suffix Information. Dialing prefixes are numbers and characters that are sent to your DCE equipment before sending the number dialed.

Dialing suffixes define the dialing speed of the DCE equipment. This provides the users with the ability to select the dialing speed when placing a call.

Prefixes and suffixes are a function of your DCE. Please consult the DCE user guide for additional information on setting dialing profiles.

Video Numbers

If you enabled **RS-366 Dialing**, the **Video Numbers** screen appears.
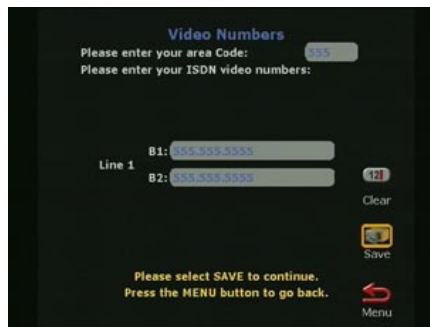
Figure 1-19. Video Numbers Screen

1. Enter the numbers that other sites can dial to call your ViewStation FX or VS4000.

2. When you have finished, review your entry, then highlight the **Save** icon and press the button on the remote control.

   For additional information about V.35, see "Advanced V.35 Configuration," on page 121.

The initial configuration process specific to the V.35 network interface is complete. To continue with the initial configuration process, skip to "Auto Detect SPIDs Screen," on page 33.

Note   If you disabled **RS-366 Dialing**, you are operating in direct connect mode and the **Video Numbers** screen will not be displayed.

PRI Network Interface Configuration Screens

If a PRI T1 or E1 network interface module is installed, the following screens appear.

Note   During PRI configuration, the ViewStation FX or VS4000 detects the PRI network module and updates the module, if necessary.

PRI Video Numbers (E1 - T1)

The **PRI Video Numbers** screen is used to enter the area code and PRI numbers associated with the PRI telephone line
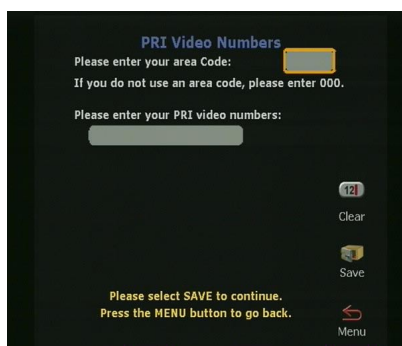
Figure 1-20. PRI Video Numbers Screen

PRI Setup (E1)

This screen is specific to a PRI E1 interface.
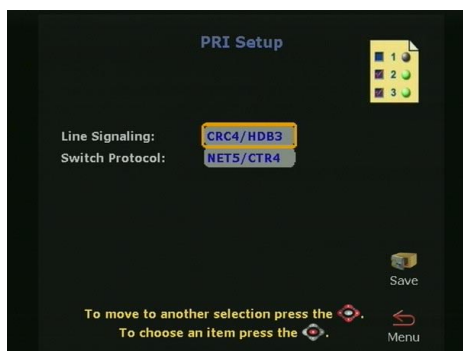
Figure 1-21. PRI Setup Screen (for E1)

You can set the following options on the **PRI Information** screen:

- **Line Signaling**—The **Line Signaling** field provides the following choices:

  - **CRC4/HDB3**: This is the default value. Data is encoded using HDB3 to ensure proper ones density, and CRC4 error checking is enabled on both transmit and receive.

  - **HDB3**: CRC4 error checking is disabled.

- **Switch Protocol**—**NET5/CTR4** is the default. It is the standard ETSI protocol derived from ITU Q.931.

  If you change the country settings, a new set of PRI switch protocols is loaded.

  If the current switch protocol is no longer available, you are prompted with "Do you wish to continue?" If you do, the current switch protocol is changed to the default for the selected country. This causes a reset of the PRI interface.

  If more than one switch protocol is supported, you must find out from the telephone service provider which protocol to select.

  The PRI network interface module originates and accepts data calls only, and does not work with incoming PRI choice calls or non-PRI lines of any kind. Special services, such as caller-id blocking and call forwarding, are not supported.

PRI Setup (T1)

If you have a PRI T1 network interface module, the following screen appears:
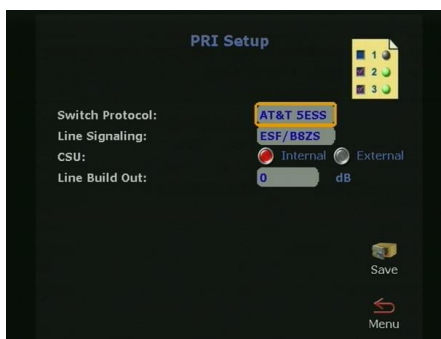
Figure 1-22. PRI Setup Screen (for T1)

Information for the fields on this screen is available from your PRI service provider. You can configure the following options on this screen:

• **Switch Protocol**—Select your network switch protocol. For certain Asian countries, such as Japan, Hong Kong, Taiwan, **NET5/CTR4** is also provided.

If you change the country settings, a new set of PRI switch protocols is loaded. If the current switch protocol is no longer available, you will be prompted with "Do you wish to continue?" If you do, the current switch protocol will be changed to the default for the selected country. This will cause a reset of the PRI interface.

If more than one switch protocol is supported, you must find out from your telephone service provider which protocol to select.

The PRI network interface module originates and accepts data calls only and does not work with incoming PRI choice calls or non-PRI lines of any kind. Special services such as caller ID blocking and call forwarding are not supported.

• **Line Signaling**—Extended Super Frame (ESF)/Binary 8 Zero Substitution (B8ZS) are the default framing format and default line encoding format respectively. Legacy frame formats such as D4 are not supported.

• **CSU**—By default, the T1 PRI network interface module is set for internal CSU mode.

If you prefer to use an external CSU, you must specify the following information in this screen:

1. In the **CSU** field, select **External**.

2. In the **Line Buildout** field, select the proper cable distance range that corresponds with the cable distance between the PRI interface and the external CSU.

Note   North America T1 only: Connect an RJ-45 cable from the CPE equipment side of the external CSU to the PRI network interface module. For more information on the CSU, refer to "Channel Service Unit," on page 225.

• **Line Build Out**—If you are using an internal CSU, enter the output attenuation in dB. If you are using an external CSU, enter the output attenuation in feet.

For more information about advanced PRI setup, see "Advanced PRI Configuration," on page 126.

Quad BRI Network Interface Configuration Screens

The Quad BRI is an inverse multiplexer which receives four input BRI ISDN lines and combines them into one eight-channel line which connects to the ViewStation FX or VS4000.

ISDN Video Numbers

On the **ISDN Video Numbers** screen, enter the area code or the STD code and ISDN number assigned to your ViewStation FX or VS4000. Your service provider should have given you this number when you purchased your ISDN line.

When you are finished, highlight the **Save** icon and press the 🔴 button on the remote control.
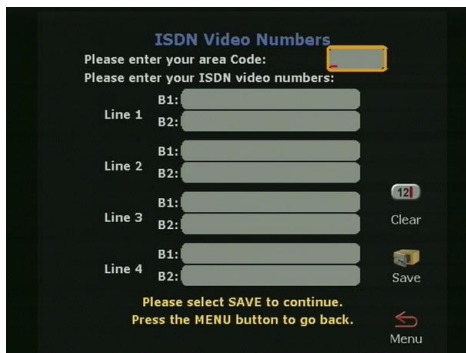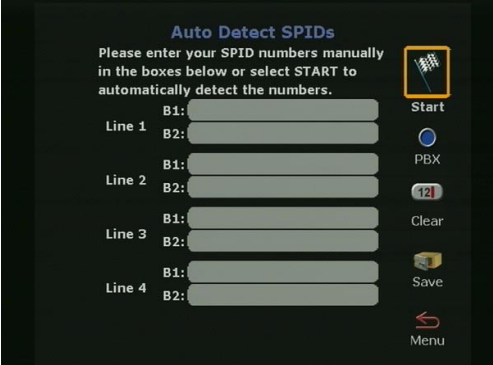
Figure 1-23. ISDN Video Numbers Screen

Tip   If you need to enter a dot between digits, press the RIGHT ARROW button on the remote control.

Auto-Detect SPIDs

On the **Auto-Detect SPIDs** screen, enter the **Service Profile ID** numbers for your ViewStation FX or VS4000. If you are connected to an internal phone system (PBX), you may not need to enter SPIDs.

If the system is unable to find your SPIDs, make sure you are connected and that you entered your ISDN numbers correctly.

Figure 1-24. Auto Detect SPIDs Screen

ISDN Switch Protocol

Select the ISDN switch protocol according to the ISDN switch type used with the ISDN network.

Figure 1-25. ISDN Switch Protocol Screen

Continuing System Configuration Screens

The following screens complete the initial system configuration of your system.

Outside Line Calls

If your system is on a PBX, enter the number to dial for outside line access on the **Outside Line Calls** screen.
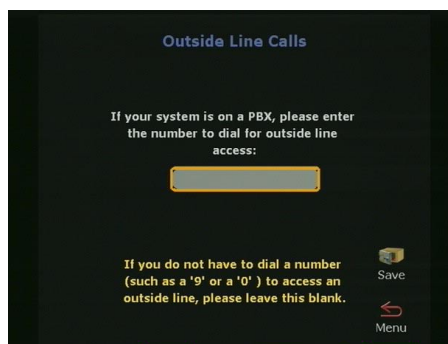
Figure 1-26. Outside Line Calls Screen

This number is usually 9 or 0. The ViewStation FX or VS4000 automatically dials this number before your video numbers.

Leave this screen blank if you do not need to dial a number to access an outside line.

When you have finished, highlight the **Save** icon and press the button on the remote control.

Telephone Numbers

On the **Telephone Numbers** screen, enter the number of the analog telephone line that is connected to your ViewStation FX or VS4000.

Figure 1-27. Telephone Numbers Screen

You can enter the number of another telephone in the same room as the ViewStation FX or VS4000. When you have finished, highlight the **Save** icon and press the ⬤ button on the remote control.

VS4000 Camera Setup

This screen is specific to the VS4000 and lets you configure your camera equipment.
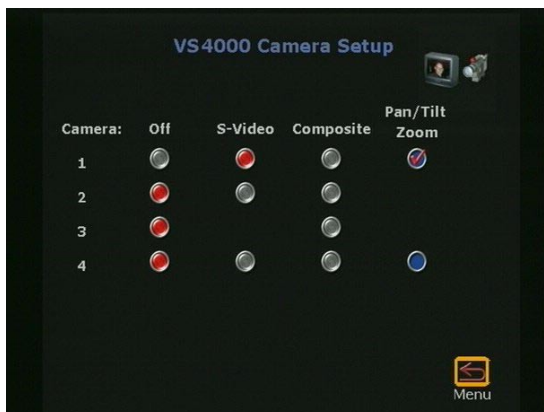
Figure 1-28. VS4000 Camera Setup Screen

You can connect four cameras to your VS4000. However, you can set three cameras to S-video mode, and two to pan/tilt/zoom mode.

To disable cameras, set your camera inputs as S-video or composite (VS4000 only), and enable pan/tilt/zoom capability on a camera.

The initial system configuration is complete. You are returned to the main screen.

Testing

Once you have configured your ViewStation FX or VS4000, you can place a test call to one of the numbers that have been pre-programmed into the Address Book of your ViewStation FX or VS4000.

To place a test call:

1. Highlight the **Address Book** icon on the main screen and press the ⬤ button on the remote control.
2. Highlight the **Address Book** icon again and press the ⬤ button on the remote control.
3. Use the arrow buttons on the remote control to select a location and press the ⬤ button on the remote control to place the call.

Main Screen (ViewStation FX and VS4000)

After the initial system configuration is complete, the system returns to the main menu.

The main screen is the starting point for everything you do on the ViewStation FX and VS4000. From the main screen you can access the **Video Phone** screen (by selecting the **Video Call** icon), the **Address Book**, all the **System Info** screens, and the **Telephone**.

Network connectivity icons are also displayed on the main screen (see following section for more information).

IP Address and ISDN Number. If you press down the feet on the remote control, the IP address and/or the ISDN number of the ViewStation FX or VS4000 appear at the bottom of the main page. This is a fast and convenient way to view your IP address or ISDN number.

Network Connectivity Icons and Indicators

Network Line Check. Every time you power on your ViewStation FX or VS4000, a *numbered yellow* icon appears for every network line below the **Video Call** icon. This *yellow* icon indicates that the ViewStation FX or VS4000 is checking to see if the network lines are connected.

If the icon changes to a green up arrow, the ViewStation FX or VS4000 has found the network line.

If the icon changes to a red down arrow, the ViewStation FX or VS4000 was unable to find the network line. In this case, check your network connection and verify that you entered the numbers correctly.
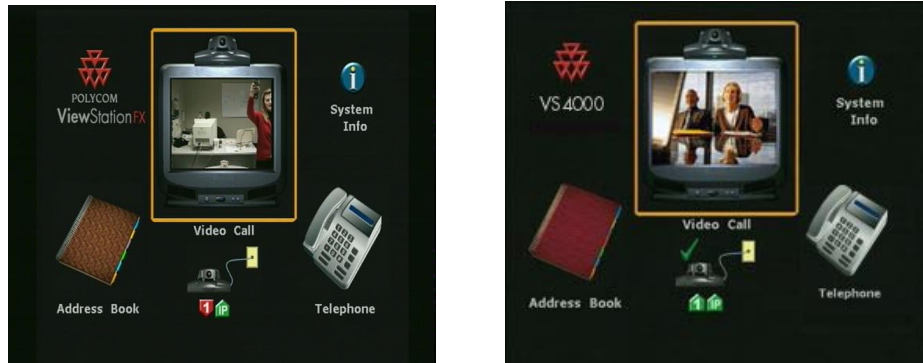
Figure 1-29. ViewStation FX / VS4000 Main Screens

ISDN Lines Check. The ViewStation FX or VS4000 checks the configuration of the ISDN lines every time you power them on. As the ViewStation FX or VS4000 confirms each line, another line indicator appears on the ISDN check icon. Once the first ISDN line (line 1) connects, you can make a call.

Once the check is complete, and if the ISDN lines are properly configured, the icon disappears. If it does not disappear, you should check the physical connections and the configuration of the ISDN lines.)
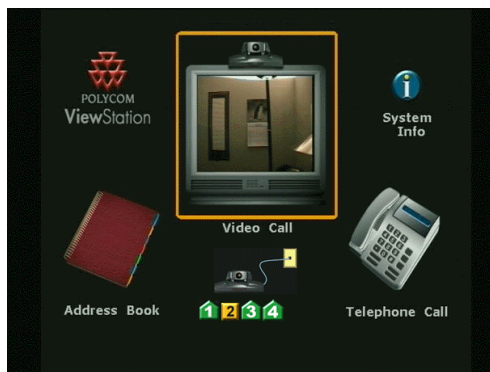
Figure 1-30. Main Screen (showing network conditions)

Gatekeeper Status Icons. Depending on the option selected on the **Gatekeeper** screen, one of the following status icons will appear on the main screen every time you power on the ViewStation FX or VS4000:

*   **Yellow Icon**—The ViewStation FX or VS4000 cannot find the Gatekeeper.
*   **Red Icon**—The ViewStation FX or VS4000 has detected the Gatekeeper, but it is not allowed to register with the Gatekeeper.
*   **Green Icon**—The ViewStation FX or VS4000 has found the Gatekeeper and it is registered with the Gatekeeper.
*   **No Icon**—No Gatekeeper was specified or set to **Auto** in the **Gateway & Gatekeeper** screen (**System Info**>**Admin Setup**>**LAN/H.323**> **H.323**>**Gateway & Gatekeeper**).

Placing a Video Call Manually

Using One Number

You can manually place a video call, as follows:

1. On the main screen, highlight the **Video Call** icon and press the 🔘 button on the remote control. The following screen appears.

Figure 1-31. Video Phone Screen

2. Use the numeric keypad on the remote control to enter the number you want to dial.

   If you need to enter alpha characters, press the AUTO button on the remote control to bring up the keyboard.

3. Use the arrow buttons on the remote control to highlight the **Speed** icon on the screen and select the speed of your call from the list that appears.

4. Press the green CALL•HANG-UP button on the remote control to place your call. The number and the speed that you are dialing appear at the top of the screen.

   The call progress indicators on the lower left side of the screen indicate that the call is going through. They change progressively to blue, yellow, orange, and green as your call completes.

Figure 1-32. Call Progress Indicators

5. When the call completes, the party you called appears on the screen, and you appear in the picture-in-picture (PIP) window at the lower right. If you have a two-monitor system, the party you are calling appears on the main monitor, and you appear on the second monitor.

    If the call does not complete, an error message is displayed. If you receive an error message, press the INFO button on the remote control for an explanation. For V.35 systems, consult your DCE interface for error messages.

6. To end your call, press the CALL•HANG-UP button on the remote control. The following screen appears.
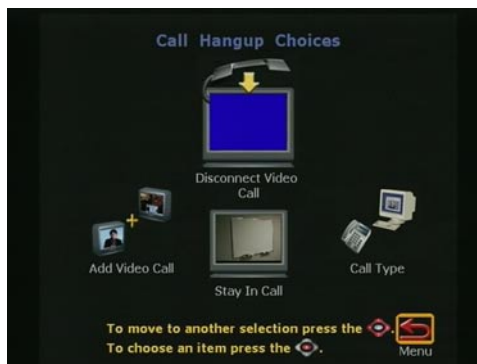
Figure 1-33. Call Hangup Choices Screen

7. Highlight the **Disconnect Video Call** icon and press the ⬤ button on the remote control. If the call was made with a number

that is not in your Address Book, a dialog box gives you the opportunity to add the number. If you select **Yes**, the system takes you to the address book where you can enter the information. If you select **No**, the main screen appears on your monitor.

Note   If you stay in this screen for 60 seconds without pressing the
            ⬭ button to stay in the call or hang up, the call is
            disconnected.

You can also place a video call using the Address Book or Speed Dial. For more information, see "Address Book," on page 66.

Using Two Numbers

To manually place a video call using two numbers, complete the following:

1. Select the **Video Call** icon. If the speed that you selected is for a bonded call (2 x 56 Kbps, for example), a second number field becomes visible. If the Auto H.323 option is enabled, the system knows which call type to use when dialing out based on the format of the number. If this option is not enabled, then the IP and ISDN options are visible on the Video Call screen and you need to select the appropriate option.

2. To enter the first ISDN number of the party you are calling, use the numeric keypad on the remote control.

    To clear an entry, use the arrow buttons on the remote control to move the highlight box to the **clear** icon on the screen, and press the SELECT button (or the CALL•HANG-UP button).

    To clear part of an entry from the right, press the LEFT ARROW button once for each character you wish to delete.

3. To enter the second number:

    •   For an ISDN number one digit greater than the first, press the RIGHT ARROW button to enter that number, then skip to step 5.

    •   For an ISDN number which is the same as the first, press the DOWN ARROW button, then skip to step 4.

    •   Otherwise, press the DOWN ARROW button to move the orange highlight box to the second line of the screen. Use the LEFT ARROW button on the remote control to delete

numbers to the left and the numeric keypad to enter the second ISDN number of the party you are calling.

4. Press the SELECT button (or the CALL•HANG-UP button) to place the call.

5. As the call connection approaches completion, the call progress indicators on the lower left of the screen change from blue to green. Two call progress indicators appear for each available line.

   If the call cannot connect, an error box appears at the top center of the screen. You can re-dial from the **Video Phone** screen, where the number you entered will remain until it is replaced or the system is turned off.

   When the call connects, the party you are calling appears in the main window and near-site video appears in a smaller screen at the lower right. If you are using a dual-monitor configuration, the party you are calling appears on the main monitor and you appear on the second monitor.
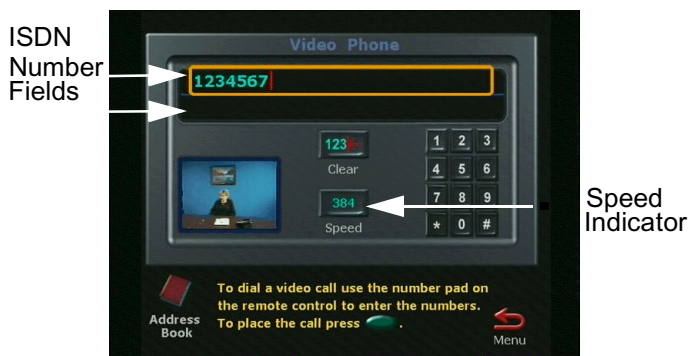
Figure 1-34. Video Phone Screen (showing ISDN numbers and speed indicators)

6. To end the call, press the CALL•HANG-UP button on the remote control, which takes you to the **Call Hangup Choices** screen.
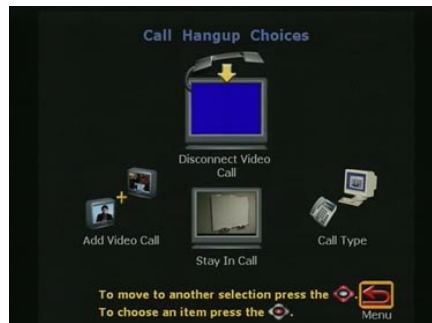
Figure 1-35. Call Hangup Choices Screen

7. Use the arrow keys to highlight the **Disconnect Video Call** icon and press the SELECT button on the remote control. If you highlight the icon but do not press SELECT, the call disconnects automatically after 60 seconds.

If the call was manually dialed with a number that does not appear in the Address Book, you are given an opportunity to enter the name and number from the call into the Address Book.

If you answer **Yes**, you will go to the screen used for adding a new entry to the Address Book. The number from that call is already entered, and you can finish filling out the entry. If you answer **No**, the system returns to the main calling screen.

Answering a Video Call

The ViewStation FX and the VS4000 are set by default to automatically answer incoming calls.

You can disable this option in the **General Setup** screen by selecting **System Info**>**Admin Setup**>**General Setup**.

To answer an incoming video call manually, highlight **Yes** when the ViewStation FX or the VS4000 prompts you, and press the 🔴 button on the remote control.

Adjusting Cameras and Sound

Cameras

Adjust the Near-Site Camera

To adjust the camera on your ViewStation FX or VS4000, press the NEAR button on the remote control. Your camera view appears full screen on the television monitor. A **camera** icon appears in the upper right corner pointing toward you.

Use the arrow buttons on the remote control to tilt the camera up and down and to pan from side to side.

Use the ZOOM button to zoom in and out.

Adjust the Far-Site Camera

You can adjust the camera on a far-site ViewStation FX or VS4000 if that site has the **Far Control of Near Camera** option enabled. For information on how to enable this option, refer to the section "Controlling Cameras," on page 73.

Press the FAR button on the remote control. A **camera** icon appears in the upper right corner pointing away from you.

Use the arrow buttons on the remote control to move the camera up and down and side to side.

Use the ZOOM buttons to zoom in and out.

If you have to go into menu screens to make adjustments while in a call, press the NEAR or FAR button on the remote control to go back directly to your call view.

Sound

The call volume on the ViewStation FX and the VS4000 is related to the volume on the television monitor and is set as follows.

1. Set the volume on the television monitor to one-half its maximum volume.

2. Set the ViewStation FX or VS4000 volume at a comfortable level.

3. To adjust the volume on the ViewStation FX or VS4000, press the volume buttons on the remote control.

Sound Effects. There is a separate volume control for the sound effects on the ViewStation FX and the VS4000:

1. To adjust this volume setting, select **System Info**>**Admin Setup**>**Phone/Audio**.

2. Select the **Sound Effects Volume** field.

3. Adjust the volume setting by using the volume control buttons on the remote control.

Using Help

To access the ViewStation **Help** screen, press the INFO button on the remote control. If your ViewStation FX or VS4000 is registered with a Global Management System, the following **Help** screen appears.
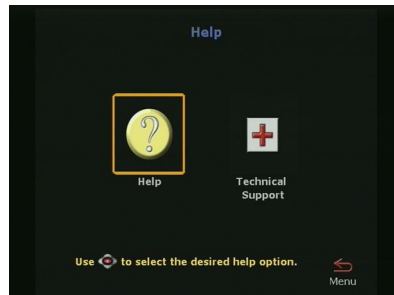
Figure 1-36. Help Screen (Main)

Help Topics

Click the **Help** icon to access the **Help** screen.
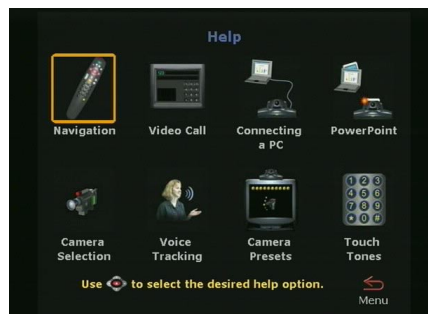
Figure **1-37**. Help Screen (Topics)

Select the appropriate help topic from this screen. The corresponding informational screen appears.

Technical Support

To obtain Technical Support, select the **Technical Support** icon in the main **Help** screen. A dialog box appears and prompts you to enter a phone number.
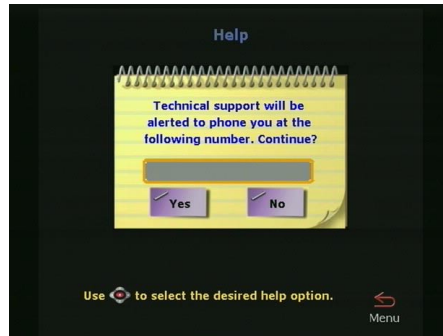
Figure **1-38**. Help Screen (Technical Support)

In order to obtain rapid assistance, include the area code with your phone number. Once your phone number has been entered, a confirmation screen appears. This confirmation screen also provides a phone number to your local technical support if one was provided when the ViewStation FX or VS4000 was first set up.

Note   The **Technical Support** icon is visible only when the ViewStation FX or VS4000 is registered with the Polycom Global Management System ^{TM}

Basic Troubleshooting

This section includes basic troubleshooting information. For more detailed troubleshooting information, refer to "Troubleshooting," on page 193.

General

Remote control is not working.

Make sure the batteries are installed. Make sure you are pointing the remote control at the ViewStation FX or the VS4000 IR detector. If battery power is low, a low battery icon appears on the main screen.

Software Update appears when you power on the ViewStation FX or VS4000.

The system software is corrupt or not loaded properly. Load system software on the ViewStation FX or the VS4000 from your PC. For instructions on how to do this, refer to "Upgrading Software Using the PC," on page 118, or consult your network equipment provider.

A lightning bolt indicator appears on the left side of your far or near-site screen.

The lightning bolt is only a visual indicator that informs you about WAN or LAN network problems. It does not indicate performance problems with your ViewStation FX or VS4000.

If you are in an H.320 call, the lightning bolt most likely indicates that the telephone company is experiencing bit errors on the line. Contact and inform your telephone company of the existing problem.

If you are in an H.323 call, the lightning bolt may signify that your LAN network is experiencing packet loss, accompanied by video and audio degradation. Contact your network manager.

The lightning bolt works differently in H.320 and H.323 calls for software version 2.5 and above:

- In H.320 calls, the lightning bolt appears if there are 3 or more CRC (Cyclic Redundancy Check) errors within a period of one second, or if there are 10 or more FEC (Forward Error Correction) errors in a period of one second.

- In H.323 calls, the lightning bolt appears if more than 100 audio and video packets are lost. The display counter is reset each time the lightning bolt appears.

The lightning bolt is triggered when your system detects a certain level of packet loss on the network. The frequency of the packet loss rate can be adjusted using the remote control shell (either via RS-232 or via Ethernet/Telnet). Refer to the *FX and VS4000 Remote Control API* document that is included on the Documentation CD.

Audio

No audio in a call.

- The ViewStation FX or VS4000 is connected to the wrong audio input on the monitor. Make sure the monitor cables are connected as shown in the ViewStation FX or VS4000 *QuickStart* color cable diagrams.
- Far site is muted. If the far site is muted, a far site **Mute** icon appears in the lower left corner of the monitor. Ask the far site to press the MUTE button on the remote control to check if it is muted or is not connected properly.
- Use the **Generate Tone** test on the ViewStation FX and VS4000 to help diagnose the problem.

You hear echo when speaking.

Echoes are always caused by the far site in a call. Have the far site turn down the volume and make sure that their microphones are placed away from the ViewStation FX or the VS4000 and monitor speakers.

Not enough volume in a call.

The volume is set too low on either the ViewStation FX, the VS4000, or the television monitor. For best results, set the volume on the television monitor to one-half its maximum volume and set the volume on the ViewStation FX or the VS4000 to a comfortable level.

Video

No picture on the main monitor.

The system enters sleep mode after 3 minutes of inactivity. In sleep mode, the system appears to be powered off. To "wake up" the

system, pick up the remote control on the ViewStation FX or VS4000, or press the button on the front of the ViewStation FX.

Same picture on first and second monitors.

- You pressed the SNAPSHOT button. The second monitor is previewing the video on the primary monitor for the snapshot. Press SNAPSHOT to send a snapshot and then press SNAPSHOT again to return to live video.

- You may have connected your second composite monitor to the VCR out port on the back of the ViewStation FX or the VS4000.

2

Using the ViewStation FX and the VS4000

This chapter contains information on how to use your ViewStation FX and your VS4000. It covers the following topics:

- Video Calls—This section explains how to place, answer, and end video calls. (page 52).

- Analog Telephone Calls—This section contains instructions on how to place a telephone call, add an telephone call to a video call and vice versa, and disconnect a telephone call. (page 55).

- Multi-Point Calls—This section describes how to place a multi-point call. It also contains detailed information on multi-point dialing speed and firewall, viewing modes, passwords, cascading capabilities, chair control, and four-monitor support. (page 58).

- Address Book—This section describes how to add, edit, and delete Address Book entries. It explains how to transfer the Address Book from one system to another, how to use the Global Address Book, and how to create multi-point Address Book entries. (page 66).

- Controlling Cameras and Sound—This section describes how to control cameras and sound. It contains detailed information on camera settings, presets, and automatic tracking. (page 73).

- Streaming Video—This section contains instructions on how to enable streaming and view streams using Apple QuickTime. (page 79).

- Snapshots—This section explains how to send snapshots. It also contains information on the Snapshot Timeout option. (page 82).

- Optional Equipment—This section lists the optional equipment that can be used in conjunction with the ViewStation FX or VS4000. (page 83).

- Graphics Cursor—This section describes the graphics cursor and how to use it. (page 86).

Video Calls

There are four ways to place a video call:

1. From the Address Book
2. Speed dialing
3. Manual dialing
4. Dialing from the Web interface

Refer to "Placing a Video Call Manually," on page 39 for information on how to manually place a video call.

Refer to "Place a Call," on page 95, for information on how to place a video call from the Web interface.

Placing a Call from the Address Book

You can place calls directly from your Address Book. For information on how to enter numbers into your Address Book, refer to "Address Book," on page 66.

You can place a call from the Address Book as follows:

1. Highlight the **Address Book** icon on the main screen and press the ⬤ button. The **Speed Dial** screen appears.
2. Highlight the **Address Book** icon again and press the ⬤ button. The **Address Book** screen appears. For each entry, the number is displayed along with icons showing dialing speed and if it is an H.320 (ISDN) or H.323 (IP) call.

Figure 2-1. Address Book Screen

3. Use the arrow buttons on the remote control to scroll through the list of names. Press the ⬤ button when you find the entry you want. The ViewStation FX or the VS4000 automatically begins to dial the video number.

Placing a Speed-Dial Call

Speed Dial stores the last six numbers dialed from the ViewStation FX or VS4000 if the numbers are in your Address Book.
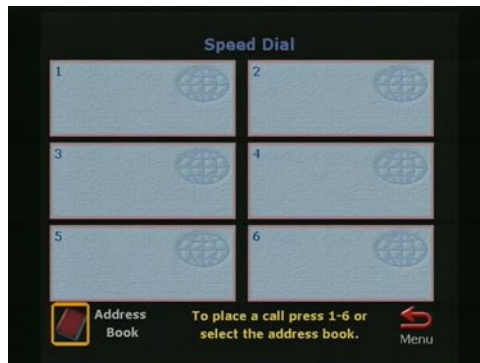
Figure 2-2. Speed Dial Screen

You can place a Speed Dial call as follows:

1. Highlight the **Address Book** icon on the main screen and press the ⬤ button. The **Speed Dial** screen appears.

2. Highlight the speed dial entry you want to dial and press the ⬤ button. The ViewStation FX or VS4000 automatically begins to dial the video number. You can also press the number of the speed dial entry you want to dial on your remote control. For example, to call speed dial entry 1, press 1 on the remote control.

Lock a Speed Dial Entry. You can lock a speed dial entry so that it always appears on the **Speed Dial** screen. This is useful for numbers you dial frequently. To lock the number, highlight the entry on the **Speed Dial** screen and press the # button on the remote control. A **Lock** icon appears next to Speed Dial entries that are locked. To unlock a number, highlight the entry and press the * button on the remote control.

Answering a Video Call Automatically

You can set your ViewStation FX or VS4000 to answer video calls automatically as follows:

1. From the main screen, select **System Info**>**Admin Setup**> **Setup**>**General Setup**.

2. Enable the **Auto Answer Video Call** option.

3. Press the MENU button on the remote control until you return to the main screen.

If the **Auto Answer Video Call** option is disabled, all video calls need to be answered manually. When someone is calling you over video, a dialog box appears asking you if you want to answer the call. Highlight **Yes** or **No** and press the 🔴 button.

Ending a Video Call

1. To end your call, press the CALL•HANG-UP button on the remote control. The following screen appears.
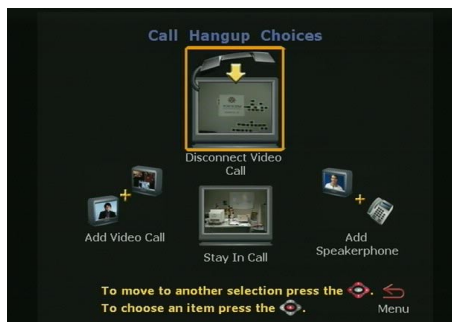
Figure 2-3. Call Hangup Choices Screen

2. Highlight the **Disconnect Video Call** icon and press the 🔴 button or press the CALL•HANG-UP button on the remote control twice. If the call was made with a number that is not in your Address Book, a dialog box gives you the opportunity to add the number.

   - If you select **Yes** the system takes you to the Address Book where you can enter the information.

   - If you select **No**, the main calling screen appears on your monitor.

- • To stay in the call, select the **Stay in Call** icon and press the
  🔴 button.

Note   If you stay in this screen for 60 seconds without pressing the
  🔴 button, the call automatically disconnects.

Analog Telephone Calls

In countries *where it is approved*, you can connect an analog
telephone line to your ViewStation FX or your VS4000. This lets you
make telephone calls through the ViewStation FX or the VS4000
and include audio third parties in your video calls.

Placing a Telephone Call

You can use your ViewStation FX or your VS4000 as a standard
speakerphone.

Complete the following steps to place a telephone call from your
ViewStation FX or VS4000.

1. From the main calling screen, select **Telephone** and press the
   🔴 button. The **Telephone** screen appears.

Figure 2-4. Telephone Screen

2. Use the numeric keypad on the remote control to enter the
   number you want to dial.

   If you are dialing within your PBX system, you only have to dial
   the last four digits of the number.

If you want to delete a digit, press the LEFT ARROW button on the remote control.

To delete an entire phone number, highlight the **Clear** icon on the screen and press the 🔘 button.

3. Press the CALL•HANG-UP button on the remote control to place the call.

4. To end the call, press the CALL•HANG-UP button on the remote control.

Adding a Telephone Call to a Video Call

Once your video call is connected, you can add a telephone call as follows:

1. Press the CALL•HANG-UP button on the remote control. The **Call Hang-up Choices** screen appears.

2. Select the **Add Speakerphone** icon and press the 🔘 button. The **Telephone** screen appears.

3. Enter the phone number of the third party using the numeric keypad on the remote control and press the 🔘 button. The ViewStation FX or the VS4000 begins dialing the third party.

4. Once the third party connects, press the NEAR or FAR button on the remote control to return to the videoconference.

Note   Three-way calling is only supported if you have enabled three-way calling from your local telephone company. Select the FLASH button on the telephone screen to obtain another line.

Disconnecting a Telephone Call

You can disconnect the telephone call as follows:

1. Press the CALL•HANG-UP button on the remote control. The **Call Hang-up Choices** screen appears.

2. Select the **Disconnect Speakerphone Call** icon and press the 🔘 button. The third party disconnects.

Adding a Video Call to a Telephone Call

Once your telephone call is connected, you can add a video call as follows:

1. Press the MENU button on the remote control until you reach the main calling screen.

2. Highlight the **Video Call** icon and press the 🔴 button. The **Video Phone** screen appears.

3. Use the numeric keypad on the remote control to enter the number you want to dial.

    If you are dialing within your PBX system, you only have to dial the last four digits of the number.

    To delete a digit, press the left arrow button on the remote control.

    To delete an entire phone number, highlight the **Clear** icon on the screen and press the 🔴 button on the remote control.

4. Press the CALL•HANG-UP button on the remote control to place the call.

5. To end the call, press the CALL•HANG-UP button on the remote control.

Multi-Point Calls

When there are more than two parties participating in a video call, it is called a multi-point call. You can have up to four parties participating in a call with the ViewStation FX or the VS4000.

If you have a PRI or BRI network interface, you can place multi-point calls over a PRI or BRI line or over H.323 on the LAN. If you have a V.35 network interface, you can place multi-point calls only over H.323 on the LAN.

Multi-Point Dialing Speed Information

The following chart shows the maximum allowable dialing speeds according to the number of sites in a call. All parties in a multi-point call must be connected at the same speed.

Network Interface	Number of Sites in a Call	Maximum Speed For Each Party in the Call (in Kbps)	
		H.320	H.323
V.35	2 3 4	1472	1920 512 384
PRI	2 3 4	1472 512 384	1920 512 384
BRI	2 with 2 lines 2 with 3 lines 2 with 4 lines	256 384 512	1920 1920 1920
	3 with 2 lines 3 with 3 lines 3 with 4 lines	128 168 256	512 512 512
	4 with 2 lines 4 with 3 lines 4 with 4 lines	64 128 128	384 384 384
H.323 Only		Refer to H.323 speeds in this table.	

Multi-Point Calls and Firewall Information

The following information specifies how many TCP and UDP ports to open through a firewall for multi-point calls.

The port assignment is defined in the **Quality of Service and Firewalls** screen, under **Use Fixed Ports**.

1. To access the **Quality of Service and Firewalls** screen, select **System Info>AdminSetup>LAN/H.323>H.323>QOS**.

2. Select the option **Use Fixed Ports**.

3. Assign the correct number of fixed ports for your multi-way call. To obtain this information, refer to the table below.

Number of Sites in Call	TCP Ports	UDP Ports
2	3230-3231	3230-3235
3	3230-3233	3230-3241
4	3230-3235	3230-3247

Placing a Multi-Point Video Call

You can place multi-point calls manually by adding sites to your video calls, or you can create multi-point address book entries. For information on creating multi-point address book entries, see "Address Book," on page 66.

Complete the following steps to place a multi-point video call:

1. Place a video call as described in "Placing a Video Call Manually," on page 39.

2. Press the CALL•HANG-UP button on the remote control. The **Call Hang-up Choices** screen appears.

3. Highlight the **Add a Video Call** icon and press the 🔴 button on the remote control. The **Video Phone** screen appears.

4. Enter the number you want to dial or use Speed Dial in the Address Book. Press the CALL•HANG-UP button on the remote control to place the call. The video call connects.

5. Repeat steps 2 through 4 until all of the sites are connected.

H.323 Multi-Point Call and Slides

You can send and receive PowerPoint slides and snapshots in an H.323 multi-point call when all systems are running version 2.5 or greater.

Multi-Point Viewing Modes

You can select four different viewing modes for the remote sites in a multi-point call:

• Automatic Mode

• Discussion Mode

• Presentation Mode

• Full Screen Mode

The default mode is Auto, which switches between Discussion and Presentation modes automatically, depending on the conversational style of your meeting.

Mode Descriptions

Auto—In Auto Mode, the system determines the optimal viewing mode based on the interaction between the sites. If more than one site is talking at the same time, the system uses Discussion mode.

If one site is talking uninterrupted, the system uses Presentation mode. The system takes about 15 seconds to decide whether there is a single presenter before switching to Presentation Mode. If one of the far sites interrupts the presenter for several seconds during Presentation mode, the system immediately switches to Discussion mode.

Discussion—In Discussion Mode, all of the sites can see everyone in the meeting at the same time. This feature is sometimes referred to as Continuous Presence Mode. You see yourself as one of the sites. Your picture might be slightly delayed if you are in a multi-point call. This is normal. The far sites hear your voice synchronized with your motion.

If you are using a single-monitor system, sites appear on screen in as many windows as there are sites in the call. If you are using a dual-monitor system in a four-way call, the near site (you) appears in the second television monitor and the far sites appear in windows

on the first television monitor. If you are using a dual-monitor system in a three-way call, each far site appears full screen on each monitor and the near site appear in PIP window on the main monitor.

Presentation—In Presentation Mode (also called voice-activated switching), the person who is speaking appears full screen to the far sites. If you are using a single-monitor system, the speaker or presenter appears full screen on your monitor.

Your picture automatically appears in a PIP window when you raise your remote control. If you are using a dual-monitor system, the person speaking appears in the main monitor, and the other parties appear in windows on the second monitor.

Full Screen—In Full Screen Mode, every site in the call sees the speaker full screen.

Mode Switching

You can switch multi-point meeting modes as follows:

1. From the main calling screen, select **System Info**>**User Setup**.

Note If you are switching modes during a multi-point call, press the MENU button on the remote control to go to the main calling screen.

2. Select the **MP Mode** field. The **Multi-Point Setup** screen appears.
3. Select **Auto**, **Discussion**, **Presentation**, or **Full Screen** mode.
4. Press the MENU button on the remote control until you return to the main screen.

Multi-Point Password

A conference password is sometimes required for a multi-point conference that uses a third-party. The ViewStation FX or the VS4000 can be configured to send the general Meeting Password or the specific Multi-Point Password to the MCU.

Setting a Specific Multi-Point Password

1. From the main screen, select **System Info**>**Admin Setup**>**Security**.

2. In the **Security** screen, enable **Multi-Point Password**, and enter a password.

Note This password is usually set up by the system administrator.

Figure 2-5. Security Screen

Setting Up the General Meeting Password

If you choose to select the Meeting Password as your multi-point password, do the following:

1. From the main screen, select **System Info**>**User Setup**.

2. In the **User Setup** screen, under **Meeting Password**, enter your password.

3. The password must then be enabled as the Multi-Point Password in the **Security** screen. This step is generally performed by your system administrator, as follows:

   a. From the main screen, select **System Info**>**Admin Setup**> **Security**.

   b. In the **Security** screen, select **Use Meeting Password**. This enables the Meeting Password that you previously entered in the **User Setup** screen.

Your configured multi-point password, whether Multi-Point Password or Meeting Password, is automatically and transparently sent as the password in a multi-point conference.

Note   Systems administrators may prefer to use the Meeting Password, because it is available in the **User Setup** screen and it does not require an Admin password to configure.

Multi-Point Cascading Capabilities

ViewStation FX and VS4000 systems can be cascaded to place a multi-point ISDN (H.320) call with up to ten sites. See the illustration below.
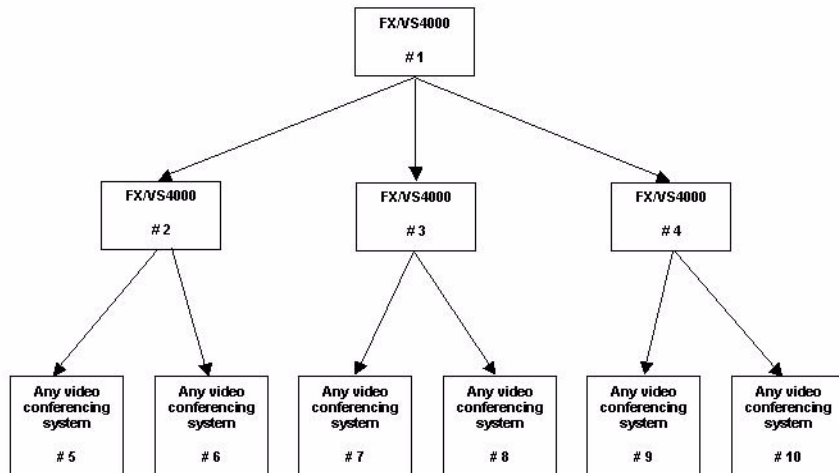
Figure 2-6. Cascading 10 Sites in a Multi-Point Call

Chair Control

Chair Control is a feature that allows any ViewStation FX or VS4000 in a non-H.323 multi-point call to do the following:

• Select which sites to view

• Select which site broadcasts its video to all other sites

• Disconnect sites from a multi-point call

Any site in the call can access the **Chair Control** screen. However, only one site can have chair control at a time. That site must release the chair control before another site can acquire it.

To access the **Chair Control** screen, you must be in a multi-point call. Press the NEAR button on the remote control and select the **Gavel** icon.

The following screen appears:

Figure 2-7. Chair Control Screen

The icons on the left of the screen are **Chair Control Actions**. The bottom right-center icons are the sites in the call. Use the RIGHT and LEFT ARROW KEYS on the remote control to select sites in the call.

If there are more than three sites in the call, you can scroll to the right to see those sites. Use the UP and DOWN ARROW KEYS to select actions to perform on the highlighted site.

You can perform the following actions in chair control.

Chair Control Screen Actions

Any site in the multi-point call can perform these actions:

•   **Acquire chair**—Enables Chair Control for your site. Other sites in the call cannot acquire the chair until you release it. If your site has the chair, a small gavel appears in chair control mode. If you attempt to acquire the chair while another site has it, a message appears telling you that another site has the chair.

- **View Site**—Displays the selected site in the live window. View Site overrides voice activated switching and any broadcaster actions from the chair. It does not affect video at other sites.

- **Stop Viewing Site**—Causes your ViewStation FX or your VS4000 to go back to voice-activated switching or broadcaster actions as set by the chair.

- **Make me the Broadcaster**—Sends a request to the chair control site to force all sites to view your site.

Chair Actions

Only the site with the chair can perform these actions:

- **Release Chair**—Disables chair control for your site. Another site in the call can now acquire the chair.

- **Select Broadcaster**—Forces all sites to view the selected site, and disables voice-activated switching.

- **Voice Switching**—Enables voice-activated switching. The site that is speaking appears in full-screen mode to all sites in the call.

- **Disconnect Site**—Disconnects the selected site from the multi-point call.

- **End the Conference**—Disconnects all sites in the multi-point call.

Four-Monitor Support

This feature allows you to display a multi-way call (with up to four participating sites) with each remote site on a separate monitor. This feature is only available at the site that is providing the MCU functionality. The other sites in the call are limited to two monitors

1. To enable this feature, select **System Info**>**Admin Setup**> **Video/Cameras**>**Monitors**>**TV Monitors**.

2. In the **TV Monitor** screen, specify the number of monitors that are available and connected to the ViewStation FX or the VS4000. You can specify up to four monitors.

Note   Refer to "4-Monitor Support Table," on page 259 for more information on the different monitor configurations and the resulting displays for each monitor.

Address Book

The Address Book saves you time by allowing you to place video calls by name. You can pre-program up to 1,000 entries in the Address Book.

If your organization uses Polycom's Global Management System™ software, you can configure your address book to automatically show all of the addresses used in your organization.

For information on how to place a call from the Address Book, refer to "Placing a Call from the Address Book," on page 52 of this chapter.

To access the Address Book:

1. Select the **Address Book** icon on the main screen. The **Speed Dial** screen appears.

2. Highlight the **Address Book** icon again and press the 🔴 button on the remote control. The main **Address Book** screen appears as follows.

Figure 2-8. Address Book Screen

From this screen, you can perform all Address Book tasks.

Note   The **New**, **Edit**, and **Delete** icons are only visible if the **Allow Address Book Changes** option has been enabled in the **General Setup** screen (**System Info>Admin Setup>General Setup**).

Adding an Entry to the Address Book

You can add an entry to the Address Book as follows:

1. Highlight the **New** icon and press the ⬭ button on the remote control. The following screen appears:
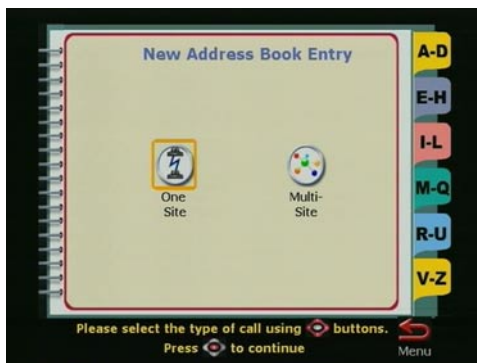
Figure 2-9. New Address Book Entry Screen

2. Highlight the **One Site** icon and press the ⬭ button on the remote control. The **Add/Change Entry** screen appears.

Note   To create a Multi-Site entry, refer to "Multi-Point Address Book Entries," on page 70.
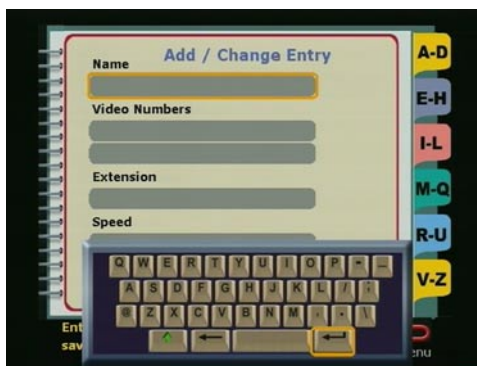
Figure 2-10. Add/Change Entry Screen

3.   Use the on-screen keyboard and the remote control to enter the necessary information on this screen. To enter a dot, press the RIGHT ARROW button on the remote control.

4.   Highlight the **Save** icon and press the ⬤ button on the remote control. You then return to the main **Address Book** screen.

Editing an Existing Entry in the Address Book

You can edit an existing Address Book entry as follows:

1.   Use the UP and DOWN arrow buttons on the remote control to highlight an Address Book entry.

2.   Highlight the **Edit** icon and press the ⬤ button on the remote control. The **Add/Change Entry** screen and the on-screen keyboard appear.

3.   Use the on-screen keyboard and the remote control to change the information on this screen as needed.

     In the name field, use the backspace key on the on-screen keyboard to delete letters.

     In the number field, use the LEFT ARROW button to delete numbers.

4.   Highlight the **Save** icon and press the ⬤ button on the remote control. Your changes are saved and you return to the main **Address Book** screen.

Note   You cannot edit global Address Book entries. They are dynamically obtained from the ViewStation FX or the VS4000 that is logged into the Global Address Book (GAB) server.

Deleting Entries in the Address Book

You can delete an existing entry in the Address Book as follows:

1.   Highlight the entry you want to delete.

2.   Use the left arrow button to highlight the **Delete** icon.

3.   Press the ⬤ button on the remote control. The entry you selected is now deleted from the Address Book.

Transferring the Address Book

You can transfer the contents of your ViewStation FX or your VS4000 Address Book to a far-site ViewStation while in an ISDN call (the Address Book transfers can occur between all ViewStation models). To transfer the contents of your Address Book:

1. From the main calling screen, go to **System Info**>**Admin Setup**>**Software/Hardware**.

2. Click the **Send Address Book** icon.

3. Enter the Administrator Password and Software Update Security Password of the far-site ViewStation.

4. Click the **Start** icon to begin the transfer.

Note   This feature is only available when the system is in an ISDN call to a single endpoint.
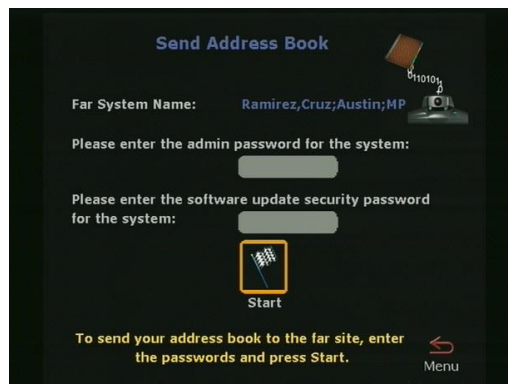
Figure 2-11. Send Address Book Screen

Using the Global Address Book

If your organization uses Polycom's Global Management System™ software and your ViewStation FX or your VS4000 is set to subscribe to the GAB server, you can access global addresses. The GAB provides ViewStation FX and VS4000 users with easy, one-button dialing to anywhere in the world. The GAB automatically captures and updates ViewStation FX or VS4000 dialing information, country codes, and preferred line speeds. The ViewStation FX or VS4000 user simply selects a name from the list to place a call.

When you access the Address Book on a ViewStation FX or a VS4000 that subscribes to the GAB server, you see addresses that have been entered manually and global addresses from various Address Books.

The following icons on the **Address Book** screen indicate GAB status and individual address status.

The presence of this icon in the upper right corner indicates that the ViewStation FX or the VS4000 is connected to the GAB server. When this icon rotates, it indicates that the ViewStation FX or the VS4000 is actively accessing the GAB server for addresses. Notice the icon rotating as you scroll through the address list.

This icon indicates that the selected address is an address from the GAB. You cannot edit or delete global addresses from the ViewStation FX or the VS4000. You can perform these tasks only from the GAB console.

This icon allows you to save a global entry to your local Address Book.

This icon indicates that the selected address is an address that was entered manually. These addresses are local to the ViewStation FX or the VS4000 and are not reported to the GAB server. You can edit and delete these addresses from the ViewStation FX or the VS4000.

For more information on Global Management System software, go to our Web site at **www.polycom.com**.

Multi-Point Address Book Entries

You can make it easier to place multi-point video calls by creating multi-point entries in your address book. Multi-point entries are made with the single-site entries that are already listed in your Address Book or Global Address Book. When you use multi-point entries, you can call all the selected sites from one Address Book entry.

If you delete one of the single-site entries that make up one of your multi-point entries, the multi-point entry is automatically removed from your Address Book.

Complete the following steps to create a multi-point entry:

1. Highlight the **New** icon and press the 🔴 button on the remote control. The **New Address Book Entry** screen appears.

2. Highlight the **Multi-Site** icon and press the 🔴 button on the remote control. The **Multi-Site Meeting** screen appears.

Figure **2-12**. Multi-Site Meeting Screen

3. Use the on-screen keyboard to enter a name for the meeting.

4. Select a dialing speed for the call. All of the sites in the call will be dialed at this speed regardless of the dialing speed set for the individual Address Book entries.

5. Highlight the **Add** icon to add parties to your call from the address book. The **Adding To Meeting** screen appears.

Figure **2-13**. Adding to Meeting Screen

6. Highlight the entry you want to add and press the 🔴 button on the remote control. The multi-point Address Book entry screen appears with that entry added.

7. Repeat Steps 5 and 6 until you have entered all of the sites for the call.

8. Highlight the **Save** icon and press the button on the remote control to return to the main Address Book screen.

9. To place a multi-point call from the Address Book, select the multi-point entry and press the CALL•HANG-UP button. All of the sites are called automatically.

Controlling Cameras and Sound

The following sections describe how to control the cameras and sound on your ViewStation FX or your VS4000.

Controlling Cameras

Selecting A Near-Site Camera

Follow these instructions to select a near-site camera:

1. Press the NEAR button twice on the remote control. Numbered local video sources appear at the bottom of the screen, where

    1 = main camera

    2 = document camera

    3 = VCR

    4 = 2nd pan/tilt/zoom camera
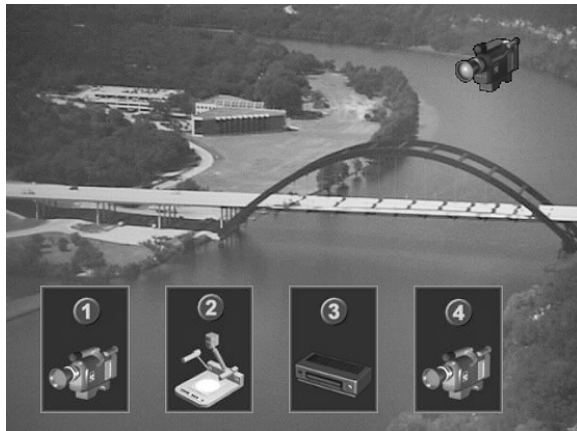
Figure 2-14. Local Video Sources

2. Use the LEFT or RIGHT arrow keys on the remote control to highlight a video source. Then press the SELECT button on the remote control.

    -or-

    After pressing the NEAR button twice on the remote control, press button 1, 2, 3, or 4 to jump to a specific camera.

Note   Make sure that the camera icons are displayed on screen. Otherwise, when you press the number button, a camera preset will be selected instead of a different camera source.

3. The ViewStation FX or VS4000 displays full screen the camera's current view on the television monitor. A **Camera** icon appears in the upper right corner pointing towards you.

Selecting a Far-Site Camera

1. To select a far-site camera source during a call, press the FAR button twice on the remote control. A series of cameras pointing away from you (towards the far site) appears.

2. Press the LEFT or RIGHT arrow key on the remote control to highlight a video source. Then press the SELECT button on the remote control.

    -or-

    After pressing the FAR button twice, press button 1, 2, 3, 4, or 5 to jump to a specific camera.

3. Press the SELECT button on the remote control.

4. The ViewStation FX or VS4000 displays full screen the far-site camera's current view on the television monitor. A **Camera** icon appears in the upper right corner pointing away from you.

Note   If there is no camera connected to the selected video source, you will see either a blue screen or frozen video from the last video source.

Controlling the Near-Site Camera

Camera Control Mode—To control or adjust the camera on your ViewStation FX or your VS4000, press the NEAR button on the remote control. A camera icon appears in the upper right corner pointing towards you.

Tilt, **Pan**—Use the arrow buttons on the remote control to tilt the camera up and down and to pan from side to side.

Zoom—Use the ZOOM buttons to zoom in and out.

The following picture shows the buttons that are used on the remote control to control the camera.
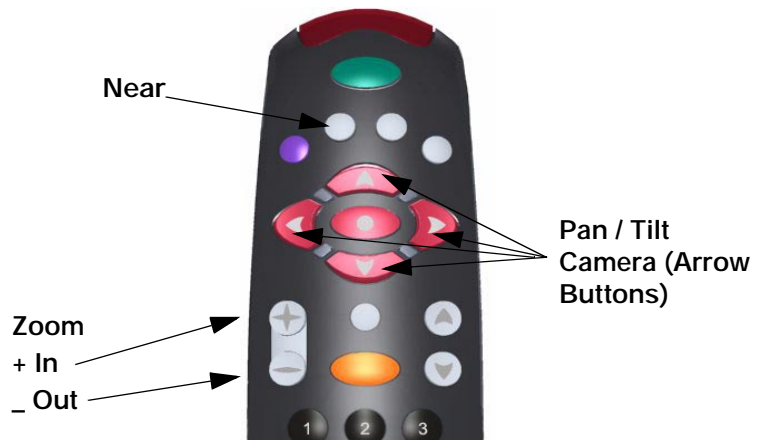
Figure 2-15. Camera Control Button on Remote Control

Controlling the Far-Site Camera

You can also adjust the camera on the far site in a call if that site has its **Far Control of Near Camera** option enabled. Other sites can control the camera on your ViewStation FX or your VS4000 if you have this option enabled. To enable this option on your ViewStation FX or your VS4000, select **System Info**>**Admin Setup**> **Video/Camera**>**Cameras**.

Camera Control Mode—To control or adjust the ViewStation FX or VS4000 camera on the far site, press the FAR button on the remote control. The far site camera's view appears full screen on the television monitor. A **Camera** icon appears in the upper right corner pointing away from you. Use the remote control to adjust the far-site camera the same way you would adjust your camera.

Tilt, Pan—Use the arrow buttons on the remote control to tilt the camera up and down and to pan from side to side.

Zoom—Use the ZOOM buttons to zoom in and out.

While in a call, if you have to go to a menu screen to make some adjustments, pressing the NEAR or FAR button on the remote control returns you to your call view.

Adjusting a Second Camera

If you have a second pan/tilt/zoom camera connected to your
ViewStation FX or your VS4000, you can adjust it with the remote
control also.

1. To adjust another camera, press the NEAR button twice. Icons
   appear for all of the connected local cameras.

2. Highlight the icon for the second camera and press the 🔴
   button on the remote control.

Camera Settings

You can adjust the settings of your cameras from the **Cameras**
screen. To access this screen, select **System Info**>**Admin
Setup**>**Video/Camera**>**Cameras**.

The options available on the **Cameras** screen are described in the
section "Cameras," on page 184.

Camera Presets

You can set and store up to ten preset camera positions. These ten
camera presets can be distributed across the far camera and up to
four near-site cameras.

Complete the following steps to set a preset:

1. Press the NEAR or FAR button on the remote control to select
   the near or far camera.

2. If you pressed the NEAR button, press it again to select the
   near-site camera.

3. Position the camera using the arrow buttons and ZOOM buttons
   on the remote control.

4. Press the 🔴 button on the remote control. The camera preset
   circles are now displayed. A "Press 0-9 to store a preset"
   message appears on the main monitor.

Note 1   If the circle is transparent, the preset is empty.

Note 2   If the circle is solid yellow, the preset is assigned.

Note 3   To clear all the presets, press the pound (#) key on the remote.

5.   Press a number button on the remote control to assign that button to the preset.

6.   To select a camera preset, press the NEAR or FAR button for the desired camera and press the number button on the remote control for the preset you want.

Automatic Voice Tracking (ViewStation FX Only)

The main camera on your ViewStation FX can automatically move to whomever is speaking in the meeting. The first time it moves to a person, it might take several seconds of continuous speech to locate the person speaking. It picks out the position quickly the next time the person speaks.

To enable automatic voice tracking, press the AUTO button once on the remote control. A **Camera** icon with a motor attached appears in the upper right corner of the main monitor.

To turn off automatic voice tracking, pan, tilt, or zoom the camera. Any of these actions returns the camera to manual mode.

Note   The VS4000 does not support automatic voice tracking.

Automatic Tracking of Camera Presets (ViewStation FX Only)

The ViewStation FX main camera can automatically track to preset positions, giving you greater flexibility and control of automatic voice tracking.

Enable automatic tracking of camera presets, as follows:

1.   Select the far or near camera and press the AUTO button twice to enable automatic tracking to preset positions.

2.   The camera moves to the preset nearest to the person speaking.

You can disable automatic tracking of camera presets by moving the selected camera with the ARROW buttons on the remote control. Automatic camera tracking is temporarily disabled under the following conditions:

- When your site is on MUTE.

- When there are loud noises coming from the far site or when the far site is speaking.

- When the near site moves the camera.

Note   This feature is not available on the VS4000 system.

Controlling Sound

The volume of the ViewStation FX or the VS4000 is related to the volume on the television monitor.

1. Set the volume on the television monitor to one-half its maximum volume.

2. Set the ViewStation FX or VS4000 volume at a comfortable hearing level.

3. To adjust the volume on the ViewStation FX or VS4000, press the VOLUME (VOL) buttons on the remote control.

MUTE Button and Indicator. To prevent far-site participants from hearing your conversation, press the MUTE button on the remote control or on the microphone pod. Notice that the red light on top of the microphone pod is illuminated.

The **Mut**e icon appears in the bottom left corner of the television monitor indicating to the near and far sites that mute is turned on. This mute indicator feature is supported in ISDN and H.323 calls. However, the mute indicator for H.323 calls is only supported by Polycom endpoints.

Streaming Video

When you use the streaming feature on the ViewStation FX or the VS4000, other people can watch your presentations or meetings live from a PC.

Enabling Streaming on the ViewStation FX or the VS4000

You must first enable streaming on your ViewStation FX or VS4000, as follows:

1. To set the ViewStation FX or the VS4000 to allow streaming, select **System Info**>**Admin Setup**>**LAN/H.323**>**Streaming**.

2. Enable the **Allow Streaming** option.
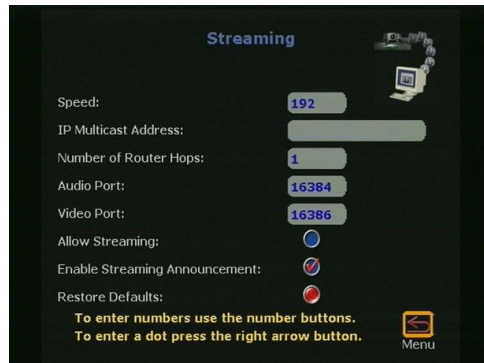
Figure 2-16. Streaming Screen

Note   Once you have enabled streaming, a **Call Type** icon appears on your main screen indicating that you are ready to start streaming.

3. You can now configure the following options on the **Streaming** screen.

    •   **Speed**—Press the ▭ button on the remote control and select the speed at which you want to stream video.

    •   **IP Multicast Address**—A default address is entered for you based on your serial number. This ensures that you do not have the same multicast address as another ViewStation FX or VS4000. You can change this address.

- **Number of Router Hops**—Enter the number of routers you want the streaming video to pass through. This allows you to control who can see your streaming video.

- **Audio Port**—This is a fixed port. This may be changed by your network manager if a user needs to go through the firewall.

- **Video Port**—This is a fixed port. This may be changed by your network manager if a user needs to go through the firewall.

- **Allow Streaming**—When this option is enabled, the icon on the main screen of the user interface changes from **Telephone** to **Call Type**. Click **Call Type** to access the **Streaming Call** screen. In the **Streaming Call** screen, you can set a **Meeting Password**. Click the **Start** icon to start streaming.

- **Enable Streaming Announcement**—When this option is enabled, the names of users logged on to your ViewStation FX or VS4000 are displayed on screen.

- **Restore Defaults**—Selecting this option restores the Speed, IP Multicast Address, Number of Router Hops, Audio Port, and Video Port defaults.

Viewing Streams Using Apple QuickTime

ViewStation FX or VS4000 Stream Configuration

1. To enable streaming on your ViewStation FX or your VS4000:

   a. Go to the **Streaming** screen (**System Info**>**Admin Setup**>**LAN/H.323**>**Streaming**).

   b. Make sure that **Enable Streaming Announcement** is enabled. It should be set by default.

   c. Enable **Allow Streaming**.

2. To start sending a stream:

   a. From the main screen, select **Call Type**.

   b. Select **Streaming Call**. Decide if you need a password.

   c. Click **Start**. A **Streaming** icon is now displayed on the upper left corner of your television screen.

You can start streaming before or after you place a video call. If you are streaming a presentation, you can go ahead and start the presentation immediately.

PC Stream Configuration

1. Enable streaming on your ViewStation FX or your VS4000 as described in step 1.

2. Start streaming as described in step 2 of the "PC Stream Configuration," on page 81.

3. To view streaming using Apple QuickTime:

    a. Start your Web browser.

    b. Enter the IP address of your ViewStation FX or your VS4000 in the browser address field.

    c. Click on the **View a Meeting** icon.

    d. In the **View a Meeting** screen, click the **View Streaming Video** icon.

    e. Enter your user name and password when prompted.

    f. Apple QuickTime will launch within your browser.

If you do not have Apple QuickTime installed, you will be prompted to install it from the Polycom/QuickTime Web page. Repeat steps 1 through 3 after installation.

Snapshots

You can send a snapshot from any local camera to the participants in a videoconference by using the snapshot feature on the ViewStation FX or the VS4000, as follows:

Sending Snapshots

You can send a snapshot to meeting participants as follows:

1. Press the SNAPSHOT button on the remote control.

2. Select a camera. Refer to the "Controlling Cameras," on page 73 for more information on selecting cameras.

3. Position the camera as necessary.

4. Press the SNAPSHOT button on the remote control again. The image is seen by all of the far sites in a call.

5. To preview your snapshot before sending it, press the SNAPSHOT button once and press 1, 2, or 3 for your desired camera source. You see a live preview from the selected camera while the far site still sees you.

6. To send the image, press the SNAPSHOT button again.

Snapshot Timeout

By default, all slides and snapshots are displayed for a period of four minutes. When the display times out after four minutes, the ViewStation FX or the VS4000 automatically returns to live video. However, when this option is disabled, the snapshot or slide stays on screen indefinitely until the user presses the SNAPSHOT button on the remote control to return to live video.

To disable this option:

1. Select **System Info**>**Admin Setup**>**Video/Camera**>TV **Monitors**.

2. In the **TV Monitors** screen, deselect **Snapshot Timeout**.

Note   Both sites must have disabled the **Snapshot Timeout** option for this feature to work. If one side has not disabled **Snapshot Timeout**, the ViewStation FX or the VS4000 reverts to its default settings.

Optional Equipment

You can enhance your videoconferences by using optional equipment. Refer to the *ViewStation FX QuickStart* or the *VS4000 QuickStart* document for color cable diagrams that show where to connect optional equipment to the ViewStation FX or the VS4000.

You can connect the following optional equipment to the ViewStation FX and the VS4000:

Monitors

Connect an additional monitor to provide a wider range of display options.

Pan/Tilt/Zoom Camera

Use an additional camera to provide continuous video of different speakers in the same room.

The following explains how to connect the Sony EVI-D30 camera to the ViewStation FX and the VS4000. Note that the FX and VS4000 require different cables.

Connecting the Sony EVI-D30 Camera

FX. The FX uses a single PTZ camera control cable which splits into two cables ("Y" shape).

1. Connect the two-connector side of the PTZ control cable as follows:

    a. The S-Video connector plugs into the S-video port of the camera.

    b. The 8-pin DIN connector plugs into the 8-pin VISCA IN port of the camera.

2. Connect the one-connector side of the PTZ control cable as follows:

    a. Plug in the 7-pin connector of the (PTZ) control cable into the FX's auxiliary camera port (4).

VS4000. The VS4000 uses two separate cables: one S-video cable and one camera control cable (DB-9 to 8-pin mini DIN).

1. Connect the S-video cable as follows:

    a. Plug one end of S-video cable into the VS4000's camera input 1 port.

    b. Plug the other end into the camera's S-video port.

2. Connect the camera control cable as follows:

    a. Plug the DB-9 connector into the VS4000's camera control 1 port.

    b. Plug the 8-pin mini DIN connector into the auxiliary camera VISCA IN port.

VCR

You can use a video cassette recorder (VCR) to record your videoconference or to present recorded material as part of your videoconference. The VCR records video from the near site's main television monitor and audio from both the near and far sites. When playing tapes, the VCR provides audio and video to all participants in a call.

1. To play a tape in the VCR, press the NEAR button on the remote control twice.

2. Use the ARROW buttons to highlight the **VCR** icon on the screen. Press the SELECT button on the remote control.

3. Use the VCR remote control to play the tape.

Document Camera

You can use a document camera to take pictures of an object or document and send them to a far site.

1. To use a document camera with your ViewStation FX or VS4000, press the NEAR button on the remote control twice.

2. Then use the ARROW buttons to highlight the **Document Camera** icon on the screen. Press the SELECT button on the remote control.

ShowStation® IP

The ShowStation IP allows you to project any type of document or Microsoft Office file in big-screen format and share it with any location instantly. Refer to chapter 5 "Using a ShowStation IP," on page 177 for more information.

Visual Concert™ DC

Visual Concert DC is part of the Visual Concert series of collaboration products designed to maximize video conferencing. This is a custom-integrated document camera that has the ability to send images at SXGA (1280 x 1024) resolution with full motion capture during a video call. It lets you save images from the glass onto a PCMCIA card, annotate images with a virtual drawing pen, view transparent material using backlighting or send a high-resolution preview with the SNAPSHOT button.

For more information about Visual Concert DC, consult the *Visual Concert DC User Guide*.

Visual Concert™ FX

Visual Concert FX is a Visual Concert collaborative product with the capability of transmitting high-resolution SXGA (1280 x 768) live graphics and high-quality audio at speeds up to 15 fps, even in multi-point calls. It works with your laptop, desktop, or Macintosh.

The live images can be from virtually any source on the laptop or desktop such as PowerPoint, Excel, a Web page or proprietary software applications. Visual Concert FX is designed to transmit graphics at SXGA resolution (1280 x 768), but will auto-sync to match the resolution of the laptop and scale to match the best resolution at the far end. A VGA-out port on the unit allows the flexibility of connecting a high-resolution projection system or monitor for in-room displays. The video and graphic images can be displayed at both the near and far ends in dual stream mode, video on one monitor and the live graphics on a second monitor.

For more information about Visual Concert FX, consult the *Visual Concert FX User Guide*.

Graphics Cursor

The Graphics Cursor is an arrow (pointer) that you can display and move around on a slide. The cursor is a convenient way to point to a specific item or area of the slide while you are talking about the item or area.

General Information

The graphics cursor is available only in slide/snapshot viewing mode and works on any slide that has been received from:

- Someone pressing the SNAPSHOT button on the remote control
- A Microsoft PowerPoint presentation
- PolycomSnap

Note   The cursor is not available in preview mode.

The graphics cursor is displayed only for the current slide; that is, the slide that is displayed when you activate the cursor. If you go to another slide, the cursor is not displayed. You must display the cursor again.

You can use the graphics cursor on a graphics monitor or VGA monitor. The cursor is available only on a dual-monitor or multi-monitor system, not a single-monitor system using your main monitor only.

Any party in the video call that is viewing the slide can manipulate the graphics cursor. In addition, all parties can see the cursor as long as one site has displayed the cursor.

Using the Graphics Cursor

Displaying the graphics cursor. Press one of the numbers (1-9) on the remote control. The graphics cursor appears as a yellow arrow. The cursor is displayed for 30 seconds and then disappears from the screen.

To redisplay the cursor, press the number 5, which allows you to turn the graphics cursor on and off.

Moving the graphics cursor. You can move the graphics cursor around the screen and point to any specific object. You can move the cursor left and right, up and down, and diagonally.

The following table summarizes each graphics cursor function associated with a specific numeric button on the remote control.

Number on the Remote Control	Graphic Cursor Function
1	Moves the cursor diagonally up and to the left.
2	Moves the cursor up.
3	Moves the cursor diagonally up and to the right.
4	Moves the cursor to the left.
5	Toggles to display and not display the cursor.
6	Moves the cursor to the right.
7	Moves the cursor diagonally down and to the left.
8	Moves the cursor down.
9	Moves the cursor diagonally down and to the right.

3

Using the ViewStation FX or the VS4000 with a PC

This chapter describes how to use your ViewStation FX or your VS4000 with a PC. It comprises the following three sections:

PC Setup—This section explains how to set up and connect your PC to a ViewStation FX or VS4000 as a prerequisite to be able to use the FX or VS4000 Web interface or upgrade software. It specifically addresses how to:

- Connect the PC and the ViewStation FX or the VS4000 to the LAN, (page 90)
- Connect the PC directly to a ViewStation FX or a VS4000 not on the LAN, (page 92)

Using the FX or VS4000 Web Interface on the PC—This section describes how to use the following Web interface features:

- Place a Call (page 95)
- View a Presentation (page 99)
- View a Meeting (page 99)
- Select a Presentation (page 100)
- Closed Caption (page 106)
- System Setup (including Diagnostics, and remote management features) (page 107)
- Configuring NetMeeting (page 113)
- Utilities (PolycomSnap, Address Book) (page 116)

Upgrading Software Using the PC—This last section contains instructions to upgrade software on the ViewStation FX or VS4000 using the PC. Refer to "Upgrading Software Using the PC," on page 118.

PC Setup

PC Requirements

You need the following items to connect the PC to the ViewStation FX or VS4000:

- Microsoft Windows 95, 98, 2000, or NT
- Desktop PC connected to a LAN or laptop with a 10 Mbps or 100 Mbps Ethernet LAN card
- Ethernet cable
- Microsoft Internet Explorer 4.0 or higher (recommended) or Netscape 4.5 or higher

Connecting the PC and the ViewStation FX or the VS4000 to the LAN

Complete the following steps to connect your PC and the ViewStation FX or VS4000 to the LAN.

1. To connect the ViewStation FX or VS4000 to the LAN:

    a. Insert one end of the provided orange RJ-45 cable into the orange LAN port on the back of the ViewStation FX or VS4000.

    b. Insert the other end of the cable into a port on the LAN. This connection is shown in the *ViewStation FX QuickStart* and the *VS4000 QuickStart*.

2. To connect the PC to the ViewStation FX or the VS4000:

    a. Insert one end of the provided blue RJ-45 cable into the blue PC port on the back of the ViewStation FX or the VS4000.

    b. Insert the other end of the cable into the Ethernet port on your computer.

3. Power on the ViewStation FX or the VS4000.

4. Select **System Info**>**Admin Setup**>**LAN/H.323**>**LAN/Intranet** to configure the ViewStation FX or VS4000's LAN/H.323 settings. The **LAN & Intranet** screen appears.

Figure 3-1. LAN & Intranet Screen

5. In the **LAN & Intranet** screen, configure the ViewStation FX or the VS4000 DHCP settings, as follows:

    If your LAN uses DHCP:

    a. Select **Client** in the **DHCP** field to enable the ViewStation FX or the VS4000 to obtain an IP address from a server on your network.

    b. After you have changed the DHCP settings, a message lets you know that the FX or VS4000 will have to be reset in order to save the changes. Select **Yes**. Another message informs you that the FX or VS4000 is about to restart.

    c. Select the **System Info** icon to go to the **System Information** screen. Your system's IP address should appear in the **IP Address** field.

Note   If the IP address field displays "...waiting...," the ViewStation FX or the VS4000 did not get an address from a server on your LAN. Check the LAN connection on the back of the ViewStation FX or the VS4000 and try again. When the ViewStation FX or the VS4000 is properly connected, the green light on the connector is illuminated and the orange light is blinking

    If your LAN does not use DHCP:

    a. Select **Off** in the **DHCP** field and manually enter the IP address, subnet mask, and gateway address provided by your system administrator.

b. **On the PC side:** Once your PC is connected to the FX or VS4000, make sure it is properly configured. This can be a rather complex process that should be best handled by your network administrator.

c. After you have changed the DHCP settings, a message lets you know that the FX or VS4000 will have to be reset in order to save the changes. Select **Yes**. Another message informs you that the FX or VS4000 is about to restart. For instructions on how to access the ViewStation FX or VS4000 Web interface, proceed to "Restart your PC. For instructions on how to access the ViewStation FX or VS4000 Web interface, proceed to the next section.," on page 94.

Connecting the PC Directly to a ViewStation FX or a VS4000 not on the LAN

Complete the following steps to connect your PC to a ViewStation FX or a VS4000 that is not on the LAN:

1. To connect your PC to the ViewStation FX or VS4000:

    a. Insert one end of the provided blue RJ-45 cable into the blue PC port on the back of the ViewStation FX or VS4000.

    b. Insert the other end of the cable into the Ethernet port on your computer.

2. Power on the ViewStation FX or VS4000.

3. To connect to your desktop or laptop computer, you need to set your ViewStation FX or VS4000 as a DHCP server. This assumes that the option **Allow System to be a DHCP Server** was enabled during software upgrade of your ViewStation FX or VS4000. Enable DHCP Server as follows:

    a. Select **System Info** > **Admin Setup** > **LAN/H.323** > **LAN/Intranet** on the ViewStation.

    b. Press the **Up** arrow on the remote control to go to the **DHCP** field and set it to **Server**. The following message will appear: "The system will now issue IP addresses to other PCs on the LAN. Continue?"

Caution   Do not use this setting if your ViewStation is on a LAN with other computers. If you do, the ViewStation will provide IP addresses to the other computers even though the LAN already has a DHCP server. Your IT personnel and system administrators will have to repair any network problems this causes.

c. Select **Yes** if you are absolutely certain you want to set your system as a DHCP server.

d. Press **Menu**. The following message will appear: "Power must be reset to save changes. Continue?" Select **Yes**.

e. Your ViewStation will automatically restart. It will now act as a DHCP server and will provide IP addresses to one or more PCs.

4. Go to the **System Information** screen. You should see an IP address of 1.1.1.2, which is the IP address of your ViewStation.

5. Once you get an IP address, go to your PC and follow these instructions:

For Windows 95 and 98:

a. Right-click the **Network Neighborhood** icon, and then right-click **Properties**.

b. When the **Network** box appears, select the **Configuration** tab, then double-click **TCP/IP**.

c. Select the **IP Address** tab. Make sure the **Obtain an IP Address Automatically** button is selected. Then click **OK**.

For Windows NT 4.0:

a. Right-click the **Network Neighborhood** icon, and then right-click **Properties**.

b. When the **Network** screen appears, select the **Protocols** tab, then double-click **TCP/IP Protocol**.

c. Select the **IP Address** tab. Make sure the **Obtain an IP Address Automatically** button is selected. Then click **OK**.

For Windows 2000:

a. Right-click the **My Network Places** icon, and then right-click **Properties**.

b. In the **Network and Dial-up Connections** window, right-click **Local Area Connection**, and select **Properties**.

c. In the **Local Area Connection Properties** window, double-click **Internet Protocol** (**TCP/IP**).

d. In the **Internet Protocol (TCP/IP) Properties** window, make sure the **Obtain an IP Address Automatically** button is selected. Then click **OK**.

6. Restart your PC. For instructions on how to access the ViewStation FX or VS4000 Web interface, proceed to the next section.

Using the ViewStation FX or VS4000 Web Interface

This section contains information on how to access the ViewStation FX or VS4000 embedded Web interface (page 94). It also explains how to use the following Web interface features and utilities:

*   Place a Call (page 95)

*   View a Presentation (page 99)

*   View a Meeting (page 99)

*   Select a Presentation (page 100)

*   Closed Caption (page 106)

*   System Setup and Remote Management (contains most of same configuration and diagnostic screens available in the User interface) (page 107)

*   Configure NetMeeting (page 113)

In addition to the above features, the following utilities are also accessible from the Web interface main screen (page 116):

*   PolycomSnap—This snapshot application can be downloaded by clicking its icon on the Web interface main page.

*   Address Book Utility—This is essentially an editor that allows you to easily manage and edit your Address Book.

*   www.polycom.com—This URL link gives you easy access to the Polycom Web site.

Accessing the Web Interface

This section assumes that your PC is already connected to your ViewStation FX or VS4000 either directly or over the LAN. If not, please refer to the previous section "PC Setup," on page 90.

To access the ViewStation FX or VS4000 Web interface, complete these steps:

1. Launch Microsoft Internet Explorer on your PC.

2. Enter the IP address of your ViewStation FX or VS4000 on the address line of your browser. (Your ViewStation FX or your VS4000's IP address is displayed on the **System Information** screen.)

    The ViewStation FX or the VS4000's Web interface main page appears on your Internet browser displaying the name of your ViewStation FX or your VS4000.

    The main icons are displayed on the left panel of the Web page (Place a Call, View a Presentation, Select a Presentation, Closed Caption, System Setup, Configure NetMeeting).

Note   The **Streaming** icon is only visible when streaming is already enabled. Refer to "Streaming," on page 110 for more information.
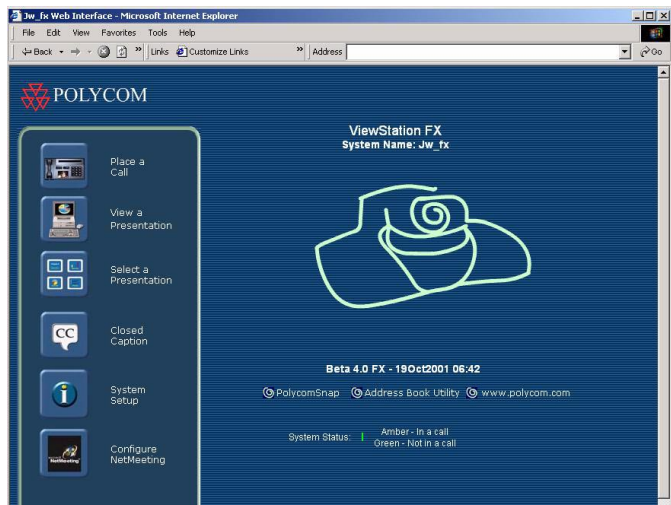
Figure 3-2. Web Interface Main Screen

3. Select **Internet Options** from the **Tools** menu of the browser and make sure that security is set to **Medium** on the **Security** tab. Click **OK**.

Place a Call

The Web interface can be used to place remote calls from a ViewStation FX or a VS4000. Calls can be placed from the Local Address Book, the Global Address Book, or manually (Manual Dial).

Note   The Global Address Book tab is only available if a Global
             Address Book has been enabled in the **Global Address**
             screen on your ViewStation FX or VS4000 (System
             Info>Admin Setup>LAN/H.323>Server>Global Address).

If the option **Allow Remote Monitoring** is enabled on the
ViewStation FX or VS4000 (System Info>User Setup), you can
watch the call go through at the bottom of the page where call status
information and streaming video snapshots from the call are
displayed.

To place a call, complete the following steps:

1. From the Web interface main page, select **Place a Call**. The
    Place a Call Web page appears.

Note   Several icons are displayed at the top and in the left panel
             on the Web page. The icons in the left panel allow you to
             access statistical tools, the virtual remote control, and
             streaming. The icons at the top of the Web page give you
             quick access to all the **Admin Setup** and **Diagnostics**
             screens, as well as to the most-often used features, such as
             View a Presentation, **Slide Presentation**, and **Place a
             Call**. For more information about these icons and related
             features, refer to "System Setup and Remote
             Management," on page 107 of this chapter.

2. Click the appropriate tab for the call method you have chosen
    (**Local Address Book**, **Global Address Book**, or **Manual
    Dial**).

3. The instructions applicable to the call method that you have
    selected are listed below:

    •   **Local Address Book**—To place a call from the Local
        Address Book:

        a.   Select the **Local Address Book** tab.

        b.   Select the site from the list.

        c.   Click the **Call this Site** button.

        Figure 3.3 shows a call placed from the Local Address
        Book. Note that the option Allow Remote Monitoring is
        enabled (call status information and streaming video
        snapshots from the call are displayed).

Figure **3-3**. Local Address Book Web Screen

- • **Manual Dial**—To place a manual call:

    a.   Select the **Manual Dial** tab.

    b.   Enter the video numbers or extension. If this is a bonded call with two different video numbers, enter the first video number in the Video A field, and the second one in the Video B field. If the video number is the same for both channels, then enter it in the Video A field.

    c.   Enter the line speed.

    d.   Select the call type (IP/H.323 or ISDN). Note that if **Auto H.323 Dialing** is enabled on the FX or the VS4000 (Admin Setup>LAN/H.323>H.323>Setup), the system will be able to auto-detect the type of call you are placing (IP or ISDN) based on the video number format. Consequently, the ISDN and H.323 fields on this Web page are not visible.

        Note   Auto H.323 Dialing is enabled by default.

    e.   Click the **Call** button.

    Figure 3.4 illustrates a call placed manually (Manual Dial). Note that the option Allow Remote Monitoring is not enabled (no streaming video snapshots from the call are displayed).
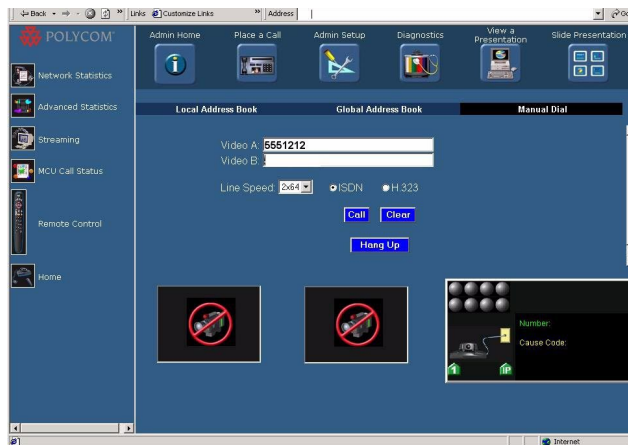
Figure 3-4. Manual Dial Web Screen

- **Global Address Book**—To place a call from the Global Address Book:

    a. Select the **Global Address Book** tab.

    b. Select the name to dial from the list on the left.

    c. Click **Call this Site**.

    Figure 3.5 shows a call placed from the Global Address Book.
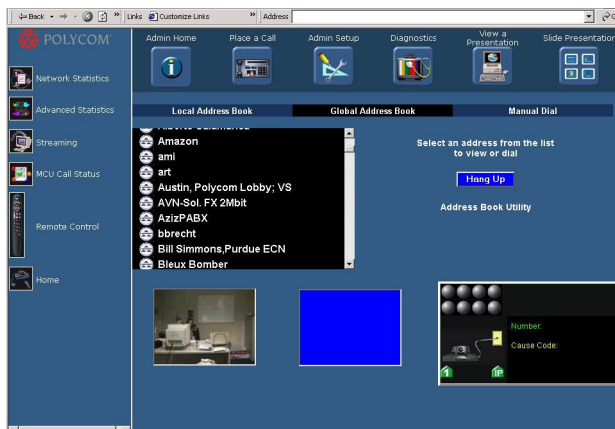
Figure 3-5. Global Address Book Web Screen

4. To terminate your call, click the **Hang Up** button.

View a Presentation

You can view a videoconference presentation on your PC using the the FX or VS4000 Web interface.

A maximum of 30 parties can simultaneously view the presentation for each ViewStation FX or VS4000 in a call. For example, in a call with another ViewStation FX or VS4000 (2 systems), 60 parties can view your presentation on 60 separate PCs (2 systems x 30 parties).

To view a presentation:

1. Launch Internet Explorer 4.0/5.0 or higher, or Netscape 4.5 or higher.

2. Enter the IP address of one of the ViewStation FX or VS4000 systems participating in the videoconference. The Web interface main page appears.

3. Click the **View a Presentation** icon. The **Enter a Network Password** dialog box appears.

4. Enter your name and a password, if one is required. The password is the Meeting Password, which is set in the **Security** screen (System Info>Admin Setup>Security) of the FX or VS4000, or in the **User Setup** screen (System Info>User Setup). Press the MENU button on the remote control to save your password.

5. Click **OK**. The slides appear.

View A Meeting

If streaming is enabled, the **View A Presentation** icon is replaced by the **View A Meeting** icon. For more information on streaming, refer to the section "Streaming," on page 110.

When you select **View a Meeting**, two options are available: **View a Slide Presentation** and **View Streaming Video**.

Figure 3-6. View a Meeting Web Screen

To view a streamed slide presentation, click **View a Slide Presentation**. To view streamed video, click **View Streaming Video**.

Select a Presentation

The following explains how to load a slide presentation from the PC to the ViewStation FX or VS4000 using the Web interface.

You can load up to eight presentations on a ViewStation FX or VS4000. Each presentation must originate on a separate PC.

Loading a Slide Presentation on the PC

Complete the following steps on your PC to load a slide presentation on the ViewStation FX or VS4000:

1. Launch Internet Explorer 4.0/5.0 or Netscape 4.5 or higher.

Note   Make sure your browser is configured to accept cookies.

2. Enter the IP address of the ViewStation FX or VS4000 on which you want to display the slides. The main Web page appears.

3. Click the **Select a Presentation** icon. The **Select a Presentation for Viewing** Web page appears.
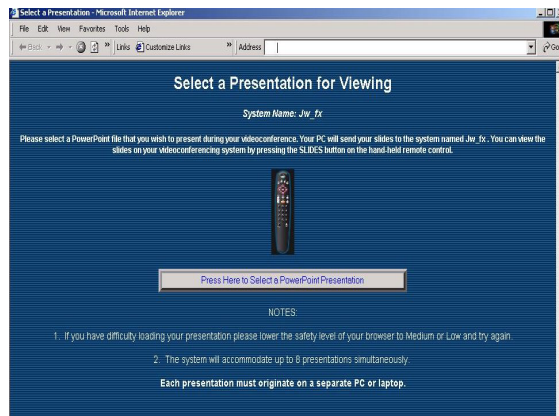
Figure 3-7. Select a Presentation for Viewing Web Screen

4.   Click the **Press Here to Select a PowerPoint Presentation** button. The **pcPresent** dialog box appears.
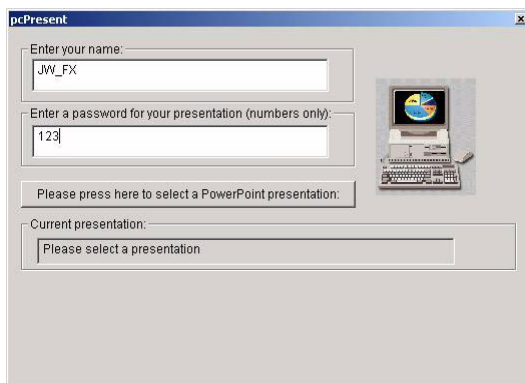
Figure 3-8. pcPresent Screen

5.   Enter your name (your system name might be here by default) and a presentation password, if you wish to establish one for the presentation. You will be prompted later for this password when you select the presentation.

Note   If the security level on your Internet browser is set too high, you will not be able to bypass the password. If this occurs, change the security level to low or medium.

6. Click the **Please press here to select a PowerPoint presentation** button. The **File Open** dialog box appears.
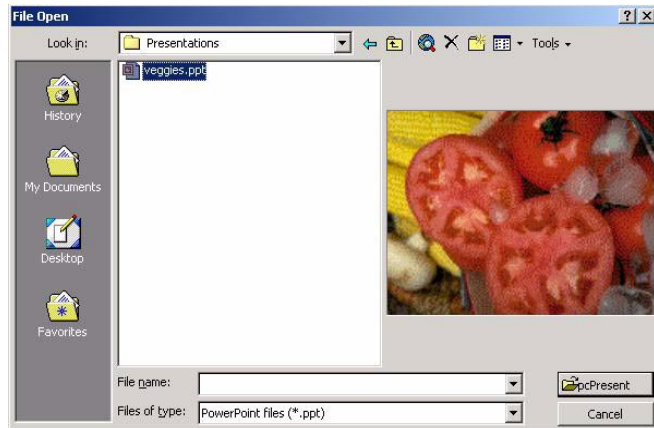
Figure 3-9. pcPresent: File Open Screen

7. On your PC, navigate to the presentation file and select it. Click the **pcPresent** button. A window appears indicating that your slides are being converted to thumbnail sketches. Once this is complete, your thumbnails are loaded into the flash memory of the ViewStation FX or VS4000.

Viewing a Slide Presentation on the FX or VS4000

Complete the following steps on the ViewStation FX or VS4000 to view the presentation:

1. Press the SLIDES button on the remote control. The **Available Presentations** screen appears on the monitor attached to the ViewStation FX or VS4000:

.
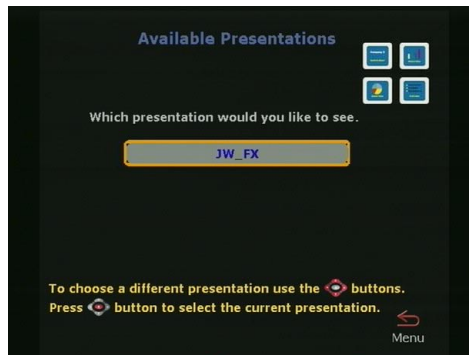
Figure 3-10. Available Presentations Screen

2. Select your presentation and press the 🔴 button on the remote control to begin presenting. A presentation password may be required to proceed (this is the password set previously in the **pcPresent** screen).

Figure 3-11. Presentation Password Screen

3. The **Presentation Directory** screen appears where you can observe slides being loaded onto the ViewStation FX or VS4000.
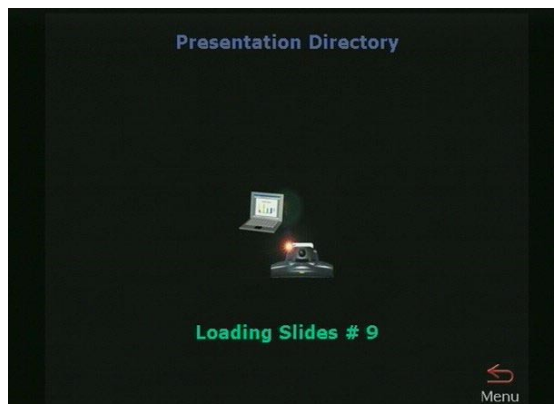
Figure 3-12. Presentation Directory (Loading Slides) Screen

4. A thumbnail of each loaded slide appears on the **Presentation Directory** screen so that you can see all of the slides at once. Use the arrow buttons on the remote control to highlight a slide, and then press the 🔲 button on the remote control to view it.
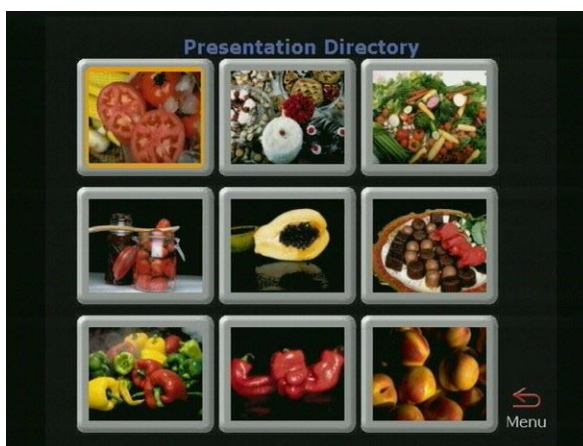
Figure 3-13. Presentation Directory (Loaded Slides) Screen

5. To get information about the slide you are viewing, press the INFO button on the remote control. The names of the presenter and the presentation appear, as well as the slide number, and

the viewing password. The viewing password is set in the **Security** screen as the **Meeting Password** field (System Info>Admin Setup>Security). You can change the password on a presentation while you are viewing it by highlighting the **Viewing Password** field on the **Slide Presentation Information** screen and entering a new password.
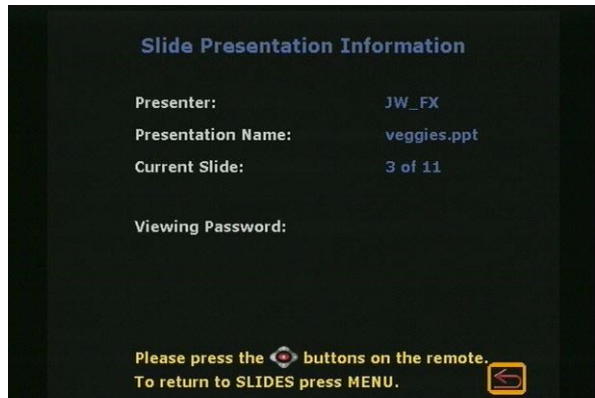
Figure 3-14. Slide Presentation Information Screen

6. Use the remote control to move through a presentation, as follows:

•   To move backward and forward through your presentation, use the LEFT and RIGHT ARROW buttons.

•   To go to the beginning of the presentation, press the UP ARROW button.

•   To go to the end, press the DOWN ARROW button.

•   If you want to go from viewing a slide to viewing its thumbnail, press the MENU button on the remote control. Press the ⬤ button on the remote control to return to live video. If you press the SLIDES button, you can select another presentation.

Slide Display Information

High-Resolution Slides. The ViewStation FX or VS4000 is capable of displaying high-resolution graphics on an attached monitor. For more information, refer to "Monitors," on page 180.

Slide Presentation Function and Annex D Support. A graphics slide or snapshot sent from one videoconferencing system to

another system may not be displayed properly if the receiving system does not support the Annex D high-resolution graphics standard.

Polycom supports this graphics standard. However, if a Polycom system sends a slide or snapshot to another vendor's system that does not support Annex D, the graphic appears on the far site monitor for a few seconds and then disappears. If this problem is encountered, verify that the other side's system supports the Annex D high-resolution standard.

Note   All Polycom videoconferencing products, including the ViaVideo desktop system, support the Annex D high-resolution graphics standard.

Closed Caption

Closed Caption is a Polycom-proprietary software feature that lets you display text on the main video screen of the local and far ViewStation FX or the VS4000 systems. This is done using the ViewStation FX or VS4000's Web interface.

Closed Caption is particularly well suited for people participating in video communications who can only communicate through written messages or who need to have the verbal exchange of other participants transcribed or translated on the fly for them. Closed caption is also a useful tool for the hearing impaired or foreign speakers.

Accessing and Using Closed Caption

1. Start Internet Explorer 4.0 or later or Netscape 4.0 or later.
2. Place a call to the far site.
3. To launch your ViewStation FX or your VS4000 Web interface, enter your ViewStation FX or your VS4000 IP address in the **Address** field of your Web browser.
4. On the main page of your ViewStation or your VS4000 Web interface, select **Closed Caption**.
5. Enter your name in the **User Name** entry box.
6. Enter the ViewStation FX or the VS4000 Meeting Password, if one is set. To find out if a password was set, check the **User Setup** screen on the ViewStation. Press **OK**.

7. You are now on the **Closed Caption** page.

8. Enter your text in the **Current** field. You can enter up to 250 characters per line at a time. When you press **Enter** on your PC keyboard, the text that you just typed is displayed in the **History** field and sent and displayed to the near site and the far-site ViewStation FX or VS4000. The message will only be displayed for 15 seconds.

Additional Information About Closed Caption

•   Closed Caption works in a call and out of a call.

•   Closed Caption works in IP (H.323) and ISDN (H.320) calls.

•   Closed Caption is only supported when the call occurs between two Polycom ViewStation SP, MP, V.35, or 512 systems running version 6.5 or greater, and FX or VS4000 systems running software version 2.5 or greater.

•   Closed Caption is not supported in multi-point calls.

•   The Closed Caption feature requires that you enter your name (and Meeting Password if you have one) after a call is started or after a call is hung up. You might have to refresh your browser if you hang up the call and you use Closed Caption out of a call.

System Setup and Remote Management

The ViewStation FX or VS4000 Web interface lets you perform most of the setup, configuration, and diagnostics tasks that are available on the FX or VS4000 user interface. These tools are grouped under two icons:

Admin Setup—Most of the setup, configuration, and message screens can be accessed from this icon.

Diagnostics—Most of the diagnostic screens and tools can be accessed from this icon.

To access these screens, read the following section.

Admin Setup and Diagnostics Web Screens

You can access ViewStation FX or VS4000 management screens grouped under the **Admin Setup** and **Diagnostics** icons, as follows:

1. Launch your Web browser and enter the IP address of the ViewStation FX or VS4000 you want to manage in the Web browser's **Address** field. The ViewStation FX or VS4000 Web interface main page appears.

Note   Internet Explorer 4.0 or higher is recommended over Netscape Navigator because the ViewStation FX or VS4000 uses Microsoft's ActiveX controls to enable the PowerPoint presentation capability.

2. Click the **System Setup** icon. The **System Information** Web screen appears. This screen contains information about your FX or VS4000, as well as the main management and features icons.

Note   You will be prompted to enter an Admin Password if one has been set in the **Security** screen (System Info>Admin Setup>Security). The user name is "admin."

Figure 3-15. System Information Web Screen

3. Select the appropriate icons to go to the corresponding management screens. The icons are organized as follows:

   Left panel on the Web page (vertically aligned icons):

   The **Admin Setup** and **Diagnostics** icons allow you to access most of the same setup, configuration, and diagnostic tools that

are available on the FX or VS4000. **Home** is a shortcut back to the main Web page.

Top of the Web page (horizontally aligned icons):

These icons give you quick access to all the **Admin Setup** and **Diagnostics** screens, as well as to the most-often used features, such as **View a Presentation**, **Slide Presentation**, and **Place a Call**. These icons are available from any of the screens from anywhere within the Admin Setup environment.

Admin Setup/General Setup Screen

The following information describes how to access the **General Setup** screen, from where most of the setup and configuration tools are available.

1. To access the **General Setup** screen (shown below), select **Admin Setup** from the left or top icon field of the Web screen.
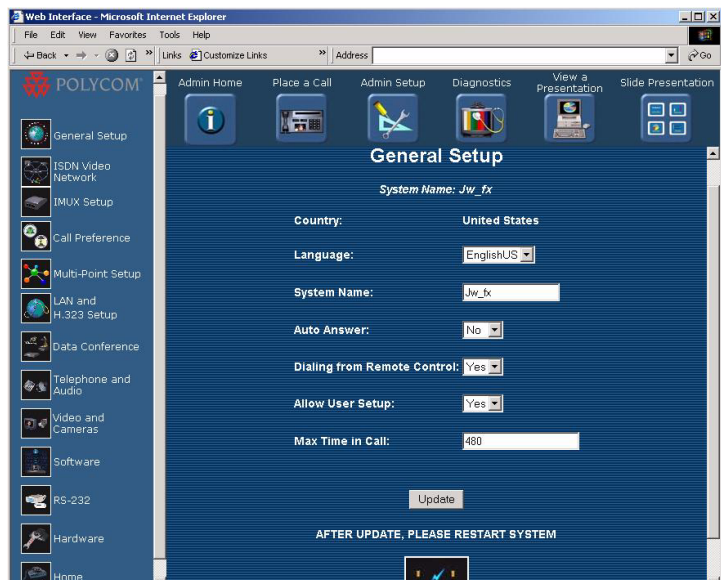
Figure 3-16. General Setup Web Screen

2. Click the icon of the feature you want to change. This screen contains the same setup and configuration tools that are available in the FX or VS4000 user interface, with the exception of the **Security** screen.

For more information about the different setup and configuration options, refer to "System Information and Diagnostics," on page 163.

3. Click the **Update** button to update the ViewStation FX or VS4000 with the new settings.

4. Some options require that you reboot your system. If this is the case, click the **Restart** button at the bottom of the Web page.

Note   The **Allow User Setup** option found on the **General Setup** screen (of the FX/FS4000 User interface) is used to enable or disable the **User Setup** icon on the **System Info** screen of the user interface. Administrators can use this option to prevent users from changing the user setup functions.

Streaming

The Web interface gives you the ability to start streaming remotely. Complete the following steps to start a stream:

1. Select **System Setup**>**Admin Setup**>**LAN and H.323 Setup**>**Streaming**.
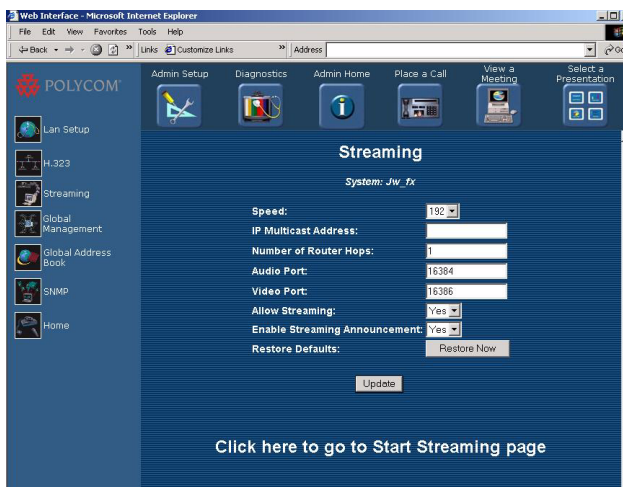
Figure 3-17. Streaming Web Screen

2. You are now in the **Streaming** page. Enable the **Allow Streaming** option by selecting **Yes** from the drop-down box.

3. Click **Update**.

4. From the current **Streaming** page, there are three different
    ways to access the **Start Stream** page:

    •   Click the text **Click here to go to Start Streaming page** at
        the bottom of the page.

    •   Click the **Place a Call** icon. Click the **Streaming** icon.

    •   Click the **Home** icon on the left field of the Web page. Click
        the **Streaming** icon now visible on the Web interface main
        page.

5. Click **Start Stream**.

System Diagnostics Screen

Main Diagnostics Screen

This section provides information on how to access the main
Diagnostics screen (**System Diagnostics**), as well as information
on how to use the virtual remote control and the Send a Message
feature.

The **System Diagnostics** Web screen contains the same diagnostic
tests that you can perform from the ViewStation FX or VS4000. The
tests that you perform are in real time.

1. To access the **System Diagnostics** Web screen, select **System
    Setup>Diagnostics**.
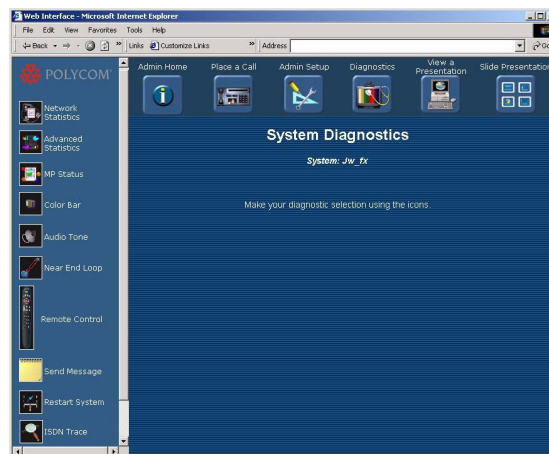
Figure 3-18. System Diagnostics Web Screen

2. Select diagnostic tests for the ViewStation FX or VS4000 you are managing from the left icon field of the Web screen.

Note For more information about the types of diagnostic tests you can perform, refer to "System Information and Diagnostics," on page 163.

Virtual Remote Control

1. From the **System Diagnostics** Web screen, click the **Remote Control** icon to use the Web interface remote control.

2. You can control most of the functions of your ViewStation FX or VS4000 using the virtual remote control on this Web screen.
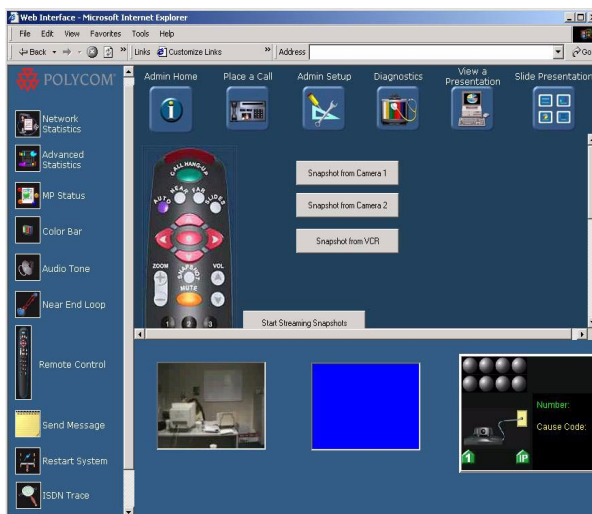
Figure 3-19. Virtual Remote Control Web Screen

Note To use the virtual remote control, you must use Internet Explorer 4.0 or higher as your Web browser.

3. You can also take snapshots using one of the three snapshot buttons. Click the appropriate button to select your source (**Snapshot from Camera 1**, **Snapshot from Camera 2**, or **Snapshot from VCR**). The **Start Streaming Snapshots** feature lets you stream snapshots of the room where the FX or VS4000 is located at regular intervals. Each snapshot is displayed for a few seconds. You can set the display time in the **Snap Interval** field.

Send a Message

1. From the **System Diagnostics** Web screen, click the **Send Message** icon to send a message to a ViewStation FX or VS4000. The text message can be up to 100 characters in length.

2. When the **Send a Message** Web page appears, type in your message and click the **Send Message** button. Your message appears on screen for 15 seconds for the ViewStation FX or VS4000 that you are managing.

Configure NetMeeting

You can place video calls through Microsoft NetMeeting. NetMeeting data is transmitted via the network and is displayed on the PC at each site. Data conferencing is only available during H.320 calls and must be supported by far-site systems.

Note   For more information about data conferencing, refer to "Data Conference," on page 176. This section also contains information on how to use a ShowStation IP.

Enable NetMeeting on the ViewStation FX or VS4000

If you want to use the ViewStation FX or VS4000 data conferencing capabilities, you must enable them on the ViewStation FX or VS4000 as follows:

1. Select **System Info**>**Admin Setup**>**Data Conference**. The **Data Conference** screen appears.

2. Enable either the NetMeeting or the T.120 device option. The ShowStation IP option appears only if a ShowStation IP is connected to the ViewStation FX, the VS4000, or the LAN.

Access NetMeeting

Complete the following steps to access NetMeeting:

1. Place a point-to-point H.320 (ISDN) call to the remote site. Make sure the remote site has also placed a call to the local site.

2. Open Internet Explorer 4.0 or higher or Netscape 4.5 or higher on your PC and enter the IP address of the ViewStation FX or

VS4000 in the **Address** field of your browser. The ViewStation FX or VS4000 Web interface main page appears on your PC.

3. Click the **Configure NetMeeting** icon.

   If an admin password is required, the **Enter Network Password** window appears.

   a. Enter your name in the **User Name** field (use "admin" as the user name).

   b. Enter the admin password in the **Password** field. This password is set in the **Security** screen (System Info>Admin Setup>Security**)** of the ViewStation FX or the VS4000.

   c. Click **OK**.

4. You are now in the **How to Start a NetMeeting Call** Web screen. You can either follow the on-screen instructions or proceed with the present instructions.

5. Enter the IP address of your PC.

   In Windows 95/98/ME, you can find your PC's IP address by clicking the **Start** button on your PC desktop. Then, click **Run**, and type `winipcfg` in the **Open** box.

   In Windows NT/2000, you can get your IP address by typing `ipconfig` at the command prompt.

   You can also obtain the IP address of your PC from the NetMeeting application. Click Help and About NetMeeting.

6. To open NetMeeting on your PC, double-click the **NetMeeting Application** icon. Make sure the far site has also launched NetMeeting.

7. Select **Call**>**New Call** from the NetMeeting menu on the PC connected to the ViewStation FX or VS4000 that initiated the videoconference. Or you can also click the phone icon on the right of the menu. The **Place a Call** window opens.

8. In the **To** field, enter the IP address of the ViewStation FX or VS4000 that is connected to your PC. For easy reference, the IP address of the ViewStation FX or VS4000 is provided on the **How to Start a NetMeeting Call** Web page.

During the NetMeeting call, the whiteboard, chat, application sharing, and file-transfer capabilities are available. Audio and video are provided via the ViewStation FX or the VS4000.

If additional participants want to join a NetMeeting conference, they can place a NetMeeting call to the IP address of either PC in the call.

NetMeeting Information

To use the NetMeeting application sharing, file transfer, and whiteboarding, your PC must be connected to your ViewStation FX or VS4000 via your LAN.

NetMeeting data is transmitted via the H.320 network. The bandwidth used is dynamically allocated so that when NetMeeting is not sending data, the bandwidth used returns to the video data.

System Compatibility and NetMeeting 3.0. T.120 application sharing, file transfer, and whiteboarding are supported for NetMeeting 3.0 when used with two ViewStation FX or VS4000 systems. You must have the same version of NetMeeting installed on both ends of the conference. These functions are not supported for NetMeeting 3.0 when used with a ViewStation FX or VS4000 and a videoconferencing unit from another vendor. In these situations, you must install NetMeeting 2.11.

Security Restrictions. For security reasons, the firewall will not allow application sharing, file transfer, and whiteboarding in an H.323 call (on the ViewStation FX or VS4000). Use NetMeeting to perform these functions between two PCs once a connection to the far site has been established.

H.323 Video Calls with NetMeeting

You can make H.323 video calls to and from a PC using NetMeeting 2.11 or 3.0.

Line Speed. The line speed of a video call from NetMeeting to a ViewStation FX or VS4000 depends on the bandwidth setting in NetMeeting:

• Cable, xDSL, or ISDN = 128 Kbps

• Local Area Network = 384 Kbps

Calls from a ViewStation FX or VS4000 to NetMeeting must be at line speeds higher than 64 Kbps.

Restrictions. You cannot use application sharing with NetMeeting while in an H.323 call with a ViewStation FX or VS4000.

Compatibility. NetMeeting 3.0 is compatible with ViewStation FX or VS4000 version 3.0 or higher for H.323 video calls. For these calls, you must disable the following two security options on the **Security** tab (**NetMeeting Tools**>**Options**):

- I prefer to receive secure incoming calls
- I prefer to make secure outgoing calls

Utilities

PolycomSnap

PolycomSnap is a PC-resident application that lets you capture JPEG images of the entire PC screen or specific windows or areas of the PC screen and display the snapshots on one or more Polycom ViewStation FX or VS4000 systems. PolycomSnap can be used in a multi-point videoconference to display snapshots of your PC to all of the participating systems simultaneously.

1. To download the PolycomSnap utility, click **PolycomSnap** on the Web interface main page.

2. A **File Download** window appears. Choose one of the options (**Run this program from its current location** or **Save it to disk**) and click **OK.**

3. Follow the on-screen instructions to download the application. When you launch the PolycomSnap application, the following interface is displayed:

Figure 3-20. PolycomSnap Interface

4. Click the **Connect** tab of the PolycomSnap interface. Enter the IP address of the ViewStation FX or VS4000 in the **Address** field. This is the IP address of the system to which the snapshots are to be sent. A Slide Viewing Password may be required.

5. Click the **Connect** button. Your ViewStation FX or VS4000 is now ready to receive snapshots.

6. Click the **Area** tab. Select the snapshot area you want to capture.

7. Click the **Snapshot** tab. Select the snapshot capture mode.

8. Then press the PolycomSnap **Snap** button, or press F9 on your PC keyboard to send a snapshot of your PC desktop to the connected ViewStation FX or VS4000.

9. To disconnect, click the **Disconnect** button under the **Connect** tab.

Address Book Utility

The Address Book Utility lets you easily edit the ViewStation FX or VS4000 Address Book on your PC. You can download the application from the Web interface main page by clicking **Address Book Utility**.
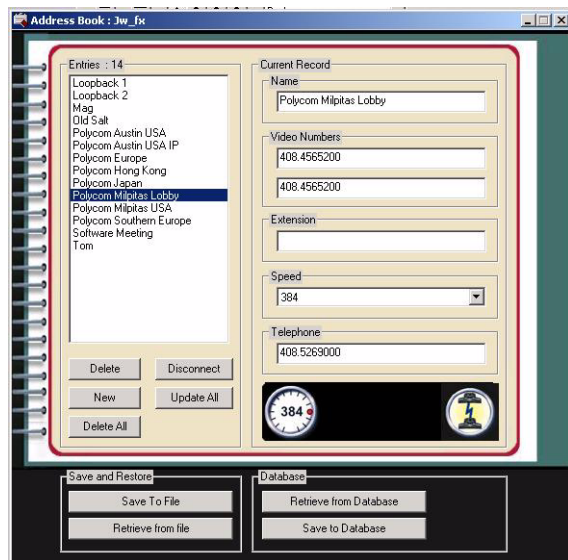
Figure 3-21. Address Book Utility Screen

Upgrading Software Using the PC

Upgrading Software over the LAN (H.323)

You can use the Softupdate application to update your software over the LAN.

Note   To update software over ISDN (H.320), refer to "Upgrading Software over ISDN (H.320)," on page 249.

Complete the following steps to upgrade your software:

1. Download the latest software from **www.polycom.com** and save it on your PC. If you do not have Internet access, your reseller can supply you with the application.

2. Double-click the software zip file and select a directory in which you want the files extracted. WinZip extracts the files. If you are prompted for a password, contact your network administrator.

3. Once the application is extracted, double-click the **Softupdate.exe** file. The Softupdate dialog box appears.
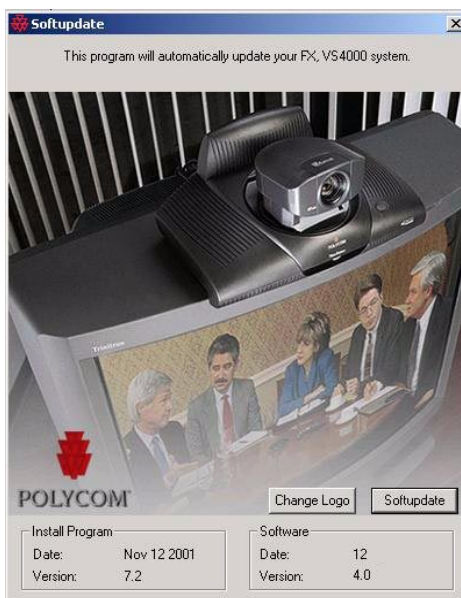
Figure 3-22. Softupdate Screen

4. Click the **Softupdate** button. The **IP Address** screen appears.

5. Enter the IP address of the ViewStation FX or VS4000 you want to update and an administrator password, if one is required.

6. Click **OK**. A **System Info** screen appears with the following options in the **Delete** field:

    •   **Address Book**—If you check this option, your existing Address Book will be deleted.

    •   **System Files**—If you check this option, your existing system files will be deleted.

    •   **Allow System to be a DHCP Server**—Checking this option will make the **Server** button visible on the **LAN & Intranet** screen in the user interface (**System Info>Admin Setup>LAN/H.323> LAN/Intranet**), and thus give you the option to make your ViewStation FX or VS 4000 a DHCP server. Left unchecked, the **Server** option will not be visible and available on the **LAN & Intranet** screen.
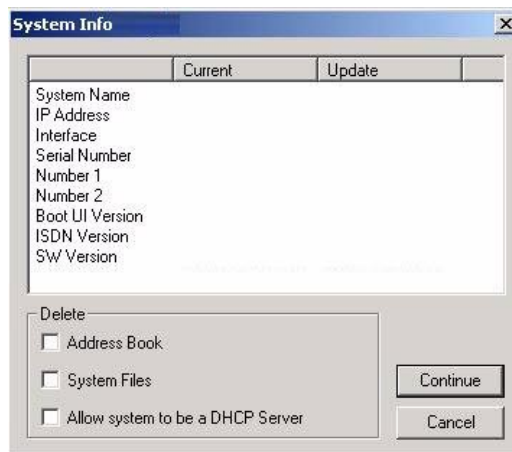
Figure 3-23. Softupdate System Info Screen

7. Click the **Continue** button to start the update process.

8. During the software upgrade, the software interface will inform you of the upgrade status. When finished, click the **OK** button to close the dialog box.

    Be sure to print the *Read Me First* file that is provided with the system software. It contains updated information that may not be included in this guide.

4

Advanced Configuration

This chapter contains advanced configuration information for the V.35, PRI, BRI and LAN/H.323 network interfaces. It comprises four major sections:

- Advanced V.35 Configuration (page 121)
- Advanced PRI Configuration (page 126)
- Advanced BRI Configuration (page 136)
- Advanced LAN/H.323 Configuration (page 141)

Advanced V.35 Configuration

This section describes information and settings for the following screens:

- Advanced V.35 Setup (page 121)
- Broadcast Mode (page 121)
- Dialing Speeds (page 123)
- Advanced Dialing (page 124)

Note   When you are finished editing the information on a screen, you can save your changes and return to the previous screen in one of two ways: press the MENU button on the remote control or highlight the **Menu** icon on the screen.

Advanced V.35 Setup

You can define parameters for each call connection function on the **Advanced V.35 Setup** screen.

To access this screen, select **System Info**>**Admin Setup**>**Video Network**>**Advanced V.35**.
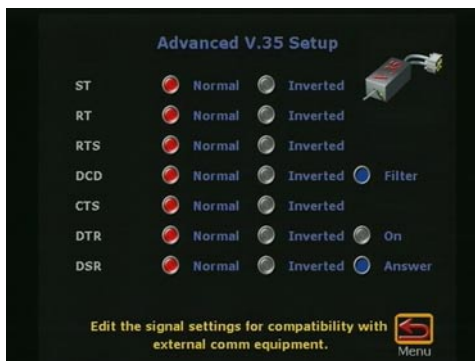
Figure 4-1. Advanced V.35 Setup Screen

The default setting for these signals is **Normal**. To invert these signals, select **Inverted**.

For more detailed information, refer to "Serial Interface Control Signals," on page 207.

Broadcast Mode

The ViewStation FX and VS4000 V.35 support H.331 broadcast mode for broadcast transmissions via satellite. In this mode, your ViewStation FX or VS4000 sends and receives audio and video without handshaking with the far-site ViewStation FX or VS4000 or H.331-compatible systems.

One ViewStation FX or VS4000 can send video and audio to many ViewStation FX and VS4000 systems or other H.331-compatible systems, such as large satellite network.

Broadcast configuration parameters should be set to accommodate the lowest common denominator of the systems which are receiving the broadcast. For example, if one system in the conference supports H.261 only, broadcast should be set to H.261 to ensure all systems participate in the conference.

Complete the following steps to access the **Broadcast Mode** screen:

1. Enable **Broadcast Mode Setup** in the **Video Network** screen (**System Info**>**Admin Setup**>**Video Network**>**Video Network**). The **Broadcast Mode Setup** satellite icon appears.

2. Select the **Broadcast Mode Setup** icon to access the **Broadcast Mode** configuration screen.
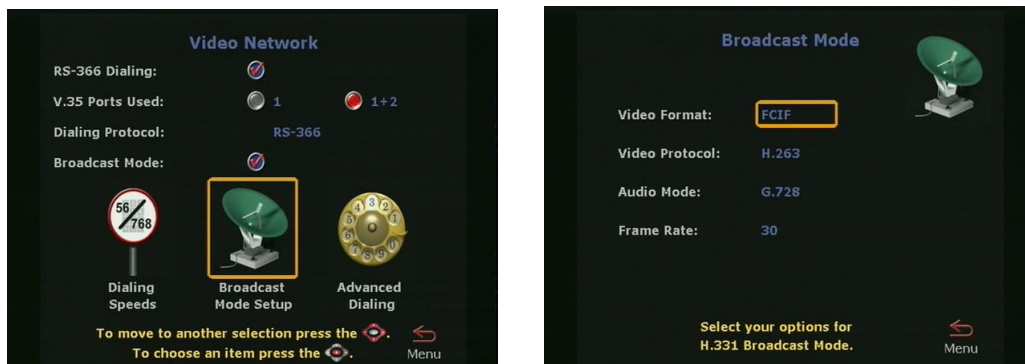
Figure 4-2. Video Network Screen and Broadcast Mode Screens

On the **Broadcast Mode** screen, you are able to set your video and audio preferences:

- **Video Format**—Select **QCIF** to transmit Quarter Common Interchange Format (176 x 144 resolution).Select **FCIF** to transmit FCIF (Full CIF 352 x 288 resolution)

- **Video Protocol**—Select **H.261** to transmit video using the H.261 video standard.Select **H.263** to transmit video using the H.263 enhanced video algorithm. Far-end systems that support H.263 receive H.263.

- **Audio Mode**—Select the preferred audio protocol for transmitting audio: G.728, G.711u, G.711A, G.722-56, G.722-48, or Off.

- **Frame Rate**—Select the preferred video frame rate for the broadcast transmission: 30 fps, 15 fps, 10 fps, or 7.5 fps.

Dialing Speeds

1. To select the dialing speeds used to place a call, enable **RS-366 Dialing** on the **Video Network** screen (**System Info**>**Admin Setup**>**Video Network**>**Video Network**).

2. Select **Dialing Speeds**. Choose the appropriate dialing speeds on the **Dialing Speeds** screen.

   The default dialing speeds are 2 x 64, 256 Kbps, 384 Kbps, 512 Kbps, and 768 Kbps.

3. To add or remove speeds, scroll through the data rates and press the SELECT button on the remote control to select your preferred dialing speeds; a red check appears when a dialing speed is selected.

The selected dialing speeds apply only to RS-366 calls.

Nx56 and Nx64 are for H.320 calls, while IPx56 and IPx64 are for H.323 calls.

For non-dialed calls, the call speed is determined by the DCE.
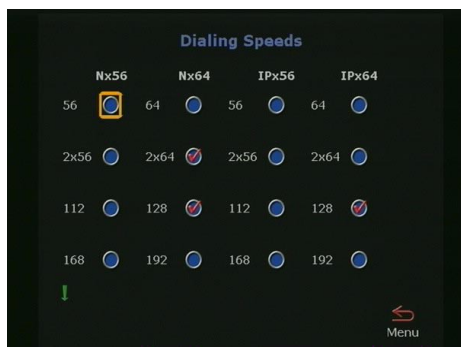
Figure 4-3. Dialing Speeds Screen

Advanced Dialing

1. To access the **Advanced V35** screen, enable **RS-366 Dialing** on the **Video Network** screen (**System Info>Admin Setup>Video Network**).

2. On the **Video Network** screen, select **Advanced Dialing**. The **Advanced V.35** screen lets you select the Calling Profile associated with dialing through a DCE.
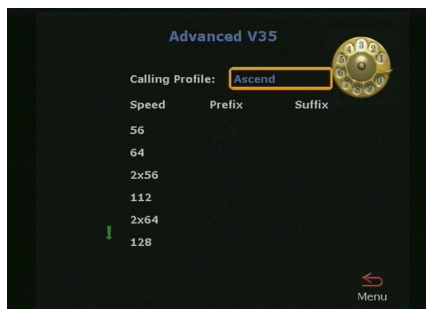
Figure 4-4. Advanced V.35 Screen(Page 1)

Calling profiles for several manufacturers are included in the ViewStation FX and VS4000.

1. To select and modify these profiles, select the **Calling Profile** field. The following calling profile list appears.
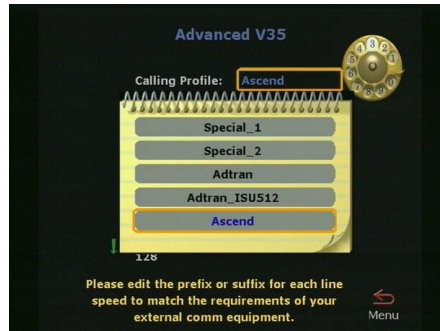
Figu**re** 4-5. Advanced V.35 Screen (Calling Profile List)

2. Select the appropriate equipment/manufacturer for the drop-down list and press the SELECT button on the remote control.

3. When you have finished, review your entry. The Prefix or Suffix information (depending on the equipment name that you selected) is now visible on the **Advanced V.35** screen.

Note   You have to enter this information only once on the **Advanced V.35** screen. When you place a call, there is no need to enter the prefix again—simply select the preferred dialing speed and the ViewStation FX or VS4000 enters the proper prefix.

Dialing Prefix and Suffix Information. Dialing prefixes are numbers and characters that are sent to your DCE equipment before sending the number dialed.

Dialing suffixes define the dialing speed of the DCE equipment. This provides the users with the ability to select the dialing speed when placing a call.

Prefixes and suffixes are a function of your DCE. Please consult the DCE user guide for additional information on setting dialing profiles.

Advanced PRI Configuration

This section describes information and settings for a series of advanced configuration screens that are grouped under the **Inverse Multiplexer Information** screen (System Info>Admin Setup>Video Network>IMUX).
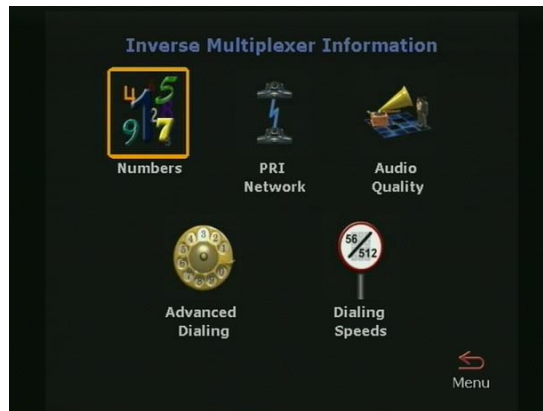
Figure 4-6. Inverse Multiplexer Information Screen

These PRI configuration screens are:

- PRI Video Numbers (page 127)
- PRI Network (T1 and E1)—From this screen, you have further access to:
    - PRI Information (T1 and E1) (page 128)
    - PRI Setup (T1 and E1) (with Advanced PRI Setup (E1 and T1)) (page 129)
    - PRI Status (T1 and E1) (page 130)
- Audio Quality Preference (page 134)
- Advanced Dialing (page 135)
- Dialing Speeds (page 135)

PRI Video Numbers

Access the **PRI Video Numbers** screen as follows: **System Info>Admin Setup>Video Network>IMUX>Numbers**.

For more information, refer to "PRI Video Numbers (E1 - T1)," on page 29.

PRI Network (T1 and E1)

To access the **PRI Network** screen, select **System Info>Admin Setup>Video Network>IMUX>PRI Network**. The following screen appears:
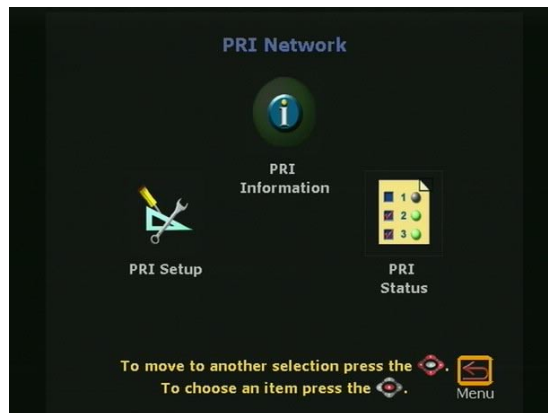
Figure 4-7. PRI Network Screen

From this screen, you can access the **PRI Information, PRI Setup,** and **PRI Status** screens. These screens are described in the three following sections.

PRI Information (T1 and E1)

To access the **PRI Information** screen, select **System Info>Admin Setup>Video Network>IMUX>PRI Network>PRI Information**. The following screen appears
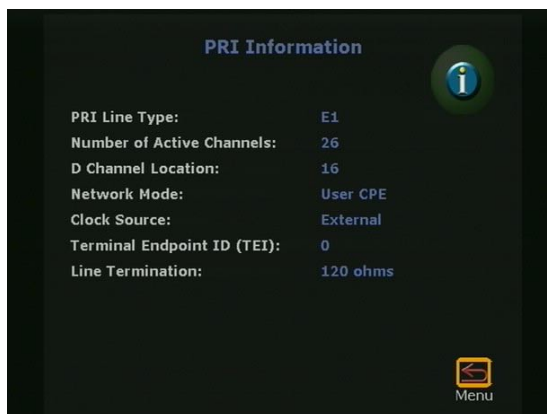
Figure 4-8. PRI Information (E1) Screen

This is an informational screen. Changes made in the other PRI-related screens are reflected in this screen.

* **PRI Line Type**—The **PRI Line Type** is automatically detected by the ViewStation FX and VS4000.

* **Number of Active Channels**—This number is set automatically. A T1 line has 23 active channels. An E1 line has 30 active channels.

* **D Channel Location**—This location is set automatically. The **D Channel Location** for an E1 line is 16 and 24 for a T1 line.

* **Network Mode**—**User CPE** is the default setting on the ViewStation FX and VS4000.

* **Clock Source**—**External** is the default setting on the ViewStation FX or VS4000.

* **Terminal Endpoint ID (TEI)**—0 is used by default and cannot be edited.

* **Line Termination** *(PRI E1 only)*—Line termination is required when there is power to the ViewStation FX or VS4000.

PRI Setup (T1 and E1)

Access the **PRI Setup** screen as follows: **System Info**>**Admin Setup**>**Video Network**>**IMUX**>**PRI Network**>**PRI Setup**. The following shows **PRI Setup** screens for E1 and T1:
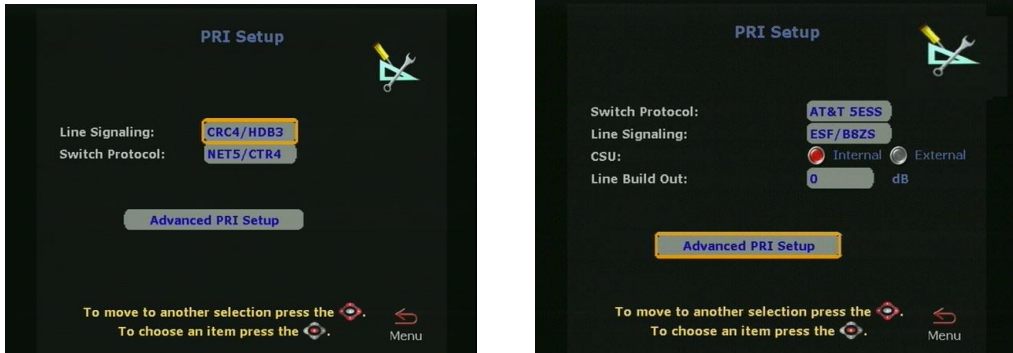
Figure 4-9. PRI Setup (E1) and PRI Setup (T1) Screens

Note   You can access the **Advanced PRI Setup** screen from this screen. For more information, refer to "Advanced PRI Setup (E1 and T1)," on page 132.

Information for the fields on this screen is available from your PRI service provider. You can configure the following options on this screen:

• **Switch Protocol**—Select your network switch protocol. For certain Asian countries, such as Japan, Hong Kong, Taiwan, **NET5/CTR4** is also provided.

If you change the country settings, a new set of PRI switch protocols is loaded.

If the current switch protocol is no longer available, you will be prompted with "Do you wish to continue?" If you do, the current switch protocol will be changed to the default for the selected country. This will cause a reset of the PRI interface.

If more than one switch protocol is supported, you must find out from your telephone service provider which protocol to select.

The PRI network interface module originates and accepts data calls only and does not work with incoming PRI choice calls or non-PRI lines of any kind. Special services such as caller ID blocking and call forwarding are not supported.

- **Line Signaling—**Extended Super Frame (ESF)/Binary 8 Zero Substitution (B8ZS) are the default framing format and default line encoding format respectively. Legacy frame formats such as D4 are not supported.

- **CSU (*PRI T1 only*)—**By default, the T1 PRI network interface module is set for internal CSU mode.

  If you prefer to use an external CSU, you must specify the following information in this screen:

  1. In the **CSU** field, select **External**.

  2. In the **Line Buildout** field, select the proper cable distance range that corresponds with the cable distance between the PRI interface and the external CSU.

Note   North America T1 only: Connect an RJ-45 cable from the CPE equipment side of the external CSU to the PRI network interface module.

  For more information on the CSU, refer to "Channel Service Unit," on page 225.

Line Build Out *(PRI T1 only)*—If you are using an internal CSU, enter the output attenuation in dB. If you are using an external CSU, enter the output attenuation in feet.

PRI Status (T1 and E1)

Access the **PRI Status** screen as follows: **System Info**>**Admin Setup**>**Video Network**>**IMUX**>**PRI Network**>**PRI Status**. The following shows the T1 and E1 **PRI Status** screens:
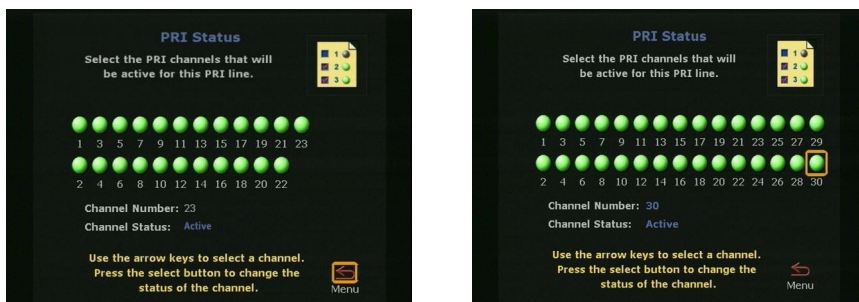
Figure 4-10. PRI Status (T1) and PRI Status (E1) Screens

Caution   This screen should only be handled by a knowledgeable network administrator.

This screen lets you limit the number of channels that a ViewStation FX or VS4000 can use to place a call or receive a call.

How the Channels are Selected

Outgoing Call. For an outgoing call, the FX or VS4000 uses the first active and available channel starting with the lowest number from the channel range (1-23 for a PRI T1 and 1-30 for a PRI E1). If an additional channel is needed, the system chooses the next incremental number. For example, if channels 1 through 7 are inactive, but 8 is active and available, then 8 is the first channel that can be used by the ViewStation FX or VS4000 to place an outgoing call. If an additional channel is needed, the system will use the next available active channel in the range (which could be 9, and so on).

Incoming Calls. For incoming calls, the FX or VS4000 may use the highest numbered channel in the range and, if needed, proceed to the next channel number in a decremental order, depending on the type of third-party equipment attached to the system. For example, an incoming call arrives on channel 23, then 22, 21, and so on.

Dedicated full PRI T1 or E1 Line: All channels should be active for a full T1 or E1 line dedicated to your FX or VS4000.

Fractional PRI T1 or E1: Channel selection should be handled by your PRI network administrator.

PRI E1 Channel Information

The **PRI Status** screen (for E1) shows 30 channels. However, E1 trunk lines have 32 timeslots, numbered 0 - 31. Timeslot 0 is used for framing, and timeslot 16 is used for call signaling (the D channel). The remaining 30 timeslots are used as bearer (data) channels.

In call signaling between our equipment and the switch, these channels are numbered 1-15, 17-31. But the **PRI Status** screen numbers these channels contiguously in the range 1-30. Therefore, on the **PRI Status** screen, channels 1-15 control the status of timeslots 1-15, and channels 16-30 control the status of timeslots 17-31 .

Advanced PRI Setup (E1 and T1)

You can define several advanced PRI options for both T1 and E1 PRI network interface modules from the **Advanced PRI Setup** screen.

Access the **Advanced PRI Setup** screen as follows: **System Info**>**Admin Setup**>**Video Network**>**IMUX**>**PRI Network**>**PRI Setup**>**Advanced PRI Setup**.
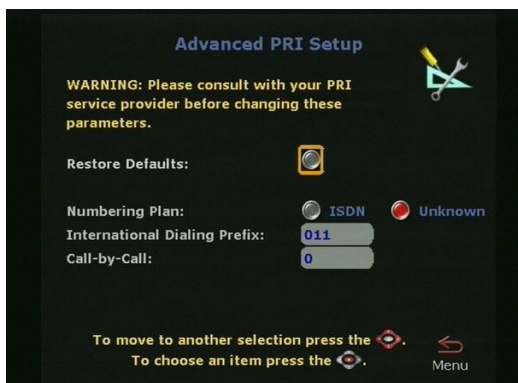
Figure 4-11. Advanced PRI Setup Screen

The information that follows describes the options on the **Advanced PRI Setup** screen.

Caution   Do not change the default values without careful consideration. Determining the call-by-call value requires consultation with the telephone service provider.

- • **Restore Default**—Selecting this option restores the default values to all of the fields on the **Advanced PRI Setup** screen.
- • **Numbering Plan**—The two options, **ISDN** and **Unknown**, are described below:

    Unknown. The default selection is **Unknown**. With this option, the numbering plan and number type are sent to the upstream as unknown, and the dialed phone number is sent without notification. Either the upstream switch or PBX is responsible for:
    - • Parsing the dialing string
    - • Interpreting any prefixes or access codes
    - • Determining whether the call is national or international

The default value, **Unknown**, is preferred and should work in most cases. **Unknown** should work with all properly configured PBXs and with most telephone company switches. One notable exception in North America is an ATT 5ESS switch, which is provisioned with Accunet, or an ATT 4ESS switch. For these switches, set the numbering type to ISDN.

ISDN. If this option is selected, the numbering plan is identified to the upstream switch as ISDN, and the number type, which is either national or international, is determined from the dialed phone number. If the dialed phone number starts with the international dialing prefix that is currently selected, the type is set to the international and the prefix is removed from the number before the number is sent to the upstream switch. Otherwise, the number is marked as national and passed to the upstream switch without modification.

When **ISDN** is selected, the international dialing prefix is not recognized if any other access code or prefix precedes the international dialing prefix. The phone number must begin with the international dialing prefix.

• **International Dialing Prefix**—The international prefix defaults to 011 for North America and 00 for European countries. The default depends on the country. If you specify a numbering type or ISDN, the system searches for this value.

• **Call-by-Call**—Call-by-call is a number from 1 to 31, which is optionally sent to an upstream telephone company switch, if required. For example, specify a value of 6 for a T1 PRI network interface module that is directly connected to an ATT 5ESS switch, which is provisioned with Accunet. You must consult with the telephone company service provider to determine whether a call-by-call value is required for a particular PRI line.

For most cases, the default value of 0 is correct. Always use the value 0 when connected to a PBX. A non-zero value should not be required in Europe. Values greater than 31 are reserved for internal use and must not be used.

Audio Quality Preference

1. To access the **Audio Quality Preference** screen, select
   System Admin>**Admin Setup**>**Video Network** >**IMUX**>**Audio
   Quality**.

2. The **Audio Quality Preference** screen lets you set the call
   speed threshold that determines which audio protocol is used.
   At the selected speed or lower, the system uses the G.728 audio
   protocol. Above the selected speed, the system uses the G.722
   audio protocol. G.722 audio delivers higher quality audio, but
   uses 48 Kbps of the video bandwidth. G.728 delivers telephone
   quality audio and uses only 16 Kbps of the video bandwidth.

3. To set the video protocol, use the + and - buttons on the remote
   control to move the slider. Changing the audio bars has no effect
   during an H.320 call. Note that this screen is not accessible
   during an H.323 call.

Figure 4-12. Audio Quality Preference

Information About the G.722 and the G.722.1 Audio Protocols.
The very robust and error-resilient G.722.1 audio protocol is
programmed into the ViewStation FX or VS4000. If both systems
support it, they automatically choose between G.722.1 and G.722
depending on the line rate. At 336 Kbps and below, the systems use
G.722.1. Above that speed, they use G.722. G.722 can use 48 Kbps,
56 Kbps, or 64 Kbps. When H.323 uses G.722, it always uses 64
Kbps. H.320 automatically chooses the bit rate to use depending on
the speed of the call.

G.722.1 and Audio Error Concealment. G.722.1 supports
enhanced frame loss concealment and works automatically and
transparently between systems supporting this audio standard. This
is based on an algorithm that detects and replaces missing speech
data, thus maintaining high-quality audio.

Advanced Dialing

To access the **Advanced Dialing** screen, select **System Info> Admin Setup>Video Network>IMUX>Advanced Dialing**.

On this screen, you can define the number of ISDN channels to be dialed in parallel. By default, ISDN channels are dialed three at a time. On PRI systems, you can choose the number of channels to dial in parallel.

Figure 4-13. Advanced Dialing Screen

Dialing Speeds

To access the **Dialing Speeds** screen, select **System Info>Admin Setup>Video Network>IMUX>Dialing Speeds**.

The **Dialing Speeds** screen allows you to specify the dialing speeds that are available when you place a call. Use the arrow buttons on the remote control to highlight the box to the right of each speed and press the SELECT button to select a speed. Once a speed is selected, a red check mark appears.

Figure 4-14. Dialing Speeds Screen

Advanced BRI Configuration

The section explains information and settings for the following screens:

- Inverse Multiplexer Information (IMUX) (page 136)
- ISDN Video Numbers (page 137)
- Auto Detect SPIDs (page 137)
- Audio Quality Preference (page 138)
- Advanced Dialing (page 139)
- Dialing Speeds (page 140)

Inverse Multiplexer Information (IMUX)

To access BRI configurations screens, select **System Info**>**Admin Setup**>**Video Network** >**IMUX**. The following **Inverse Multiplexer Information** screen appears.

Figure 4-15. Inverse Multiplexer Information Screen

The following sections describe the screens that are accessible from the **Inverse Multiplexer Information** screen.

ISDN Video Numbers

1. To access the **ISDN Video Number** screen, select **System Info**>**Admin Setup**>**Video Network** >**IMUX**>**Numbers**. The **ISDN Video Numbers** screen appears.

2. On the **ISDN Video Numbers** screen, enter the area code and ISDN numbers assigned to your ViewStation FX or VS4000. Your service provider should have given you these numbers when you purchased the ISDN line.

Figure 4-16. ISDN Video Numbers Screen

Auto Detect SPIDs

1. To access the **Auto Detect SPIDS** screen, select **System Info**>**Admin Setup**>**Video Network** >**IMUX**>**SPIDS**. The **Auto Detect SPIDs** screen appears.

Figure 4-17. Auto Detect SPIDs Screen

Note   This screen appears only if you selected United States or Canada as your country on the country screen.

2.   Enter the Service Profile ID numbers for your ViewStation FX or VS4000. If you are behind an internal phone system (PBX), you may not need to enter the SPIDs.

If you do not have the SPID numbers, highlight the **Start** icon and press the SELECT button on the remote control. This initiates a process that automatically detects the SPID numbers associated with your ISDN line. This process can take as long as ten minutes, but will usually require three minutes or less.

Audio Quality Preference

1.   To access the **Audio Quality Preference** screen, select **System Admin**>**Admin Setup**>**Video Network** >**IMUX**>**Audio Quality**.

2.   The **Audio Quality Preference** screen lets you set the call speed threshold that determines which audio protocol is used. At the selected speed or lower, the system uses the G.728 audio protocol. Above the selected speed, the system uses the G.722 audio protocol. G.722 audio delivers higher quality audio, but uses 48 Kbps of the video bandwidth. G.728 delivers telephone quality audio and uses only 16 Kbps of the video bandwidth.

3.   To set the video protocol, use the + and - buttons on the remote control to move the slider. Changing the audio bars has no effect during an H.320 call. Note that this screen is not accessible during an H.323 call.
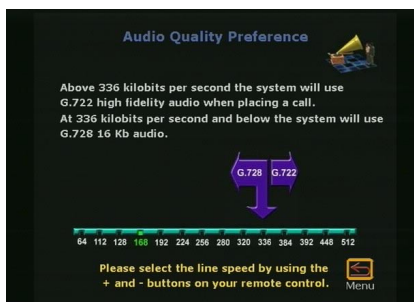

Figure 4-18. Audio Quality Preference

Information About the G.722 and the G.722.1 Audio Protocols. The very robust and error-resilient G.722.1 audio protocol is programmed into the ViewStation FX or VS4000. If both systems support it, they automatically choose between G.722.1 and G.722 depending on the line rate. At 336 Kbps and below, the systems use G.722.1. Above that speed, they use G.722.

G.722 can use 48 Kbps, 56 Kbps, or 64 Kbps. When H.323 uses G.722, it always uses 64 Kbps. H.320 automatically chooses the bit rate to use depending on the speed of the call.

G.722.1 and Audio Error Concealment. G.722.1 supports enhanced frame loss concealment and works automatically and transparently between systems supporting this audio standard. This is based on an algorithm that detects and replaces missing speech data, thus maintaining high-quality audio.

Advanced Dialing

1. To access the **Advanced Dialing** screen, select **System Info**>**Admin Setup**>**Video Network** >**IMUX**>**Advanced Dialing**.

2. On the **Advanced Dialing** screen, you can define how each ISDN channel will be dialed. Normally, channels are dialed in parallel.
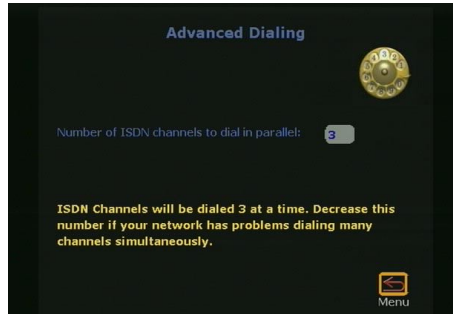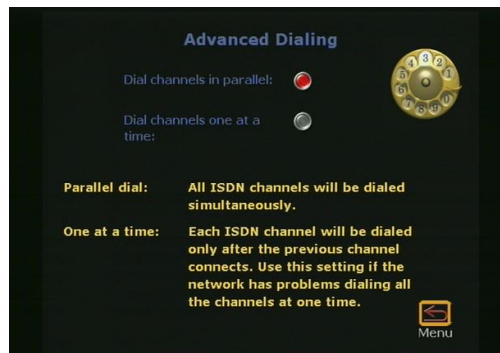

Figure 4-19. Advanced Dialing Screen

Dialing Speeds

1. To access the **Dialing Speeds** screen, select **System Info>Admin Setup>Video Network >IMUX>Dialing Speeds**.

2. On the **Dialing Speeds** screen, specify the dialing speeds that are available when you place a call. To do so, use the arrow buttons on the remote control to highlight the box to the right of each speed and press the SELECT button to select a speed. Once a speed is selected, a red check mark appears.
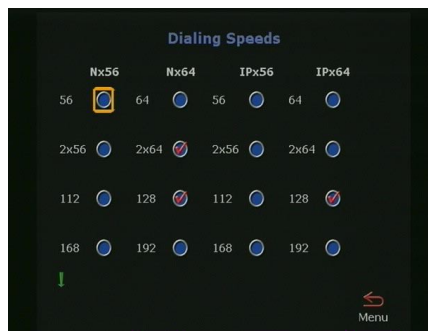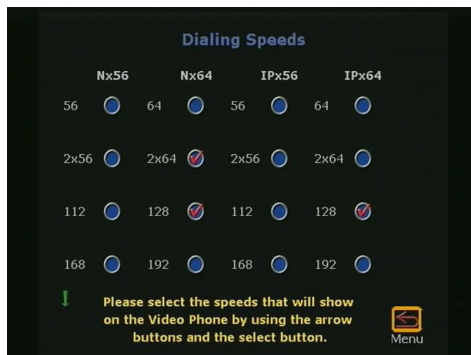

Figure 4-20. Dialing Speeds Screen

Advanced LAN/H.323 Configuration

The section contains configuration information for the following screens:

- LAN & Intranet (DHCP, DNS servers, and WINS server) (page 142)
- H.323 Setup (Main) (page 144)
    - H.323 Setup (Configuration) (page 144)
    - Quality of Service and Firewalls (page 145)
    - Dialing Speeds (page 147)
    - Gateway & Gatekeeper (page 147)
        - Gateway Number (page 149)
        - Gateway (Gateway Setup) (page 150)
- Streaming (page 151)
- SNMP Setup (page 152)
- Global Address (page 154)
    - Global Address (Server) (page 154)
    - Global Address Book Preferences (page 155)
    - Dialing Rules 1 (page 156)
    - Dialing Rules 2 (page 158)
- Global Management (Main) (page 159)
    - Global Management (Setup) (page 159
    - Global Management Info (page 162)

Note   When you are finished editing the information on a screen, you can save your changes and return to the previous screen in one of two ways: press the MENU button on the remote control or highlight the *Menu* icon and press the 🔴 button.

To access the ViewStation FX or VS4000 H.323 configuration screens, select **System Info**>**Admin Setup**>**LAN/H.323**. The **LAN** screen appears.

Figure 4-21. LAN Screen

The following sections describe the configuration screens that are accessible from the **LAN** screen.

LAN & Intranet

To access the **LAN & Intranet** screen, select **System Info**>**Admin Setup**>**LAN/Intranet**.On the **LAN & Intranet** screen, you can change your LAN host name, DHCP and WINS settings of your ViewStation FX or VS4000.

DHCP Settings. If your ViewStation FX or VS4000 is connected to a LAN, enable the **Client** option in the **DHCP** field (if DHCP is available). If you are connecting the ViewStation FX or VS4000 directly to a PC that is not connected to the network, enable the **Server** option for this field.

Note   The **Server** button is visible on the **LAN & Intranet** only if the option **Allow System to be a DHCP Server** has been previously enabled in the **System Info** screen of the Softupdate application.

For more information, refer to "Upgrading Software Using the PC," on page 118.
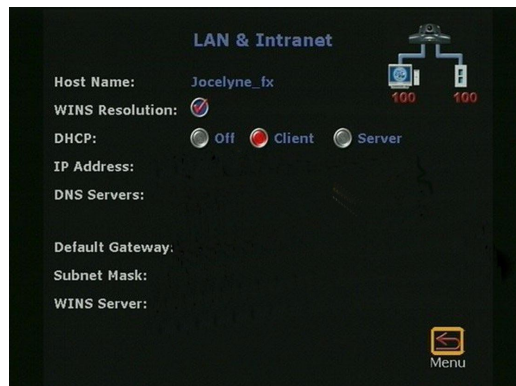
Figure 4-22. LAN & Intranet Screen

Caution   Do not select the **Server** option if your ViewStation FX or VS4000 is on a LAN with other computers. If you do, the ViewStation or VS4000 provides IP addresses to the other computers on the LAN even though the LAN already has a DHCP server. Your system administrators may have to repair any network problems this causes.

H.323 Setup (Main)

To access the main **H.323 Setup** screen, select **System Info**>**Admin Setup**>**LAN/H.323**>**H.323**. The main **H.323 Setup** screen appears.

The following sections describe the configuration screens that you can access from the main **H.323 Setup** screen.
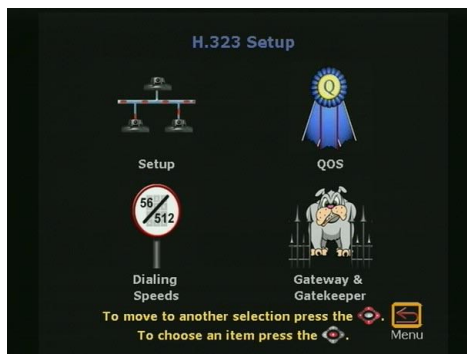
Figure 4-23. H.323 Setup Screen (main)

H.323 Setup (Configuration)

To access the **H.323 Setup** configuration screen, select **System Info**>**Admin Setup**>**LAN/H.323**>**H.323**>**Setup**. The **H.323 Setup** screen appears.
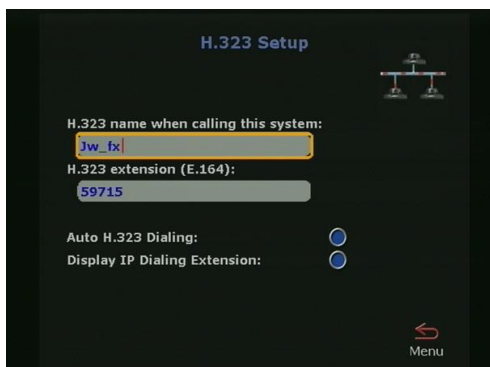
Figure 4-24. H.323 Setup Screen (configuration)

This screen allows you to configure the H.323 name and extension that can be used to dial your ViewStation FX or VS4000:

- **H.323 Name when calling this system**—Your system name appears as your H.323 name, but you can change it on this screen.

- **H.323 Extension (E.164)**—This is the number that is needed to access a specific LAN device for incoming calls. You can change the extension to a number that is easy to remember. Your administrator might have specific names and extensions. If you have a Gatekeeper installed on your network, other parties can call you by using the H.323 name or extension. The H.323 name and extension are registered with your Gatekeeper.

- **Auto H.323 Dialing**—When this option is enabled, the FX or VS4000 is able to auto-detect the type of call you are placing (IP or ISDN) based on the video number format. Consequently, the **ISDN** and **H.323** fields are not visible on the **Video Phone** screen. This option is enabled by default.

- **Display IP Dialing Extension**—This extension is needed when placing a call through a Gateway. When this option is selected, the **Extension** field is visible in the **Video Call** screen.

It is a good idea to consult your network administrators before changing your H.323 name and extension; they might have specific names and extensions they want you to use.

Quality of Service and Firewalls

To access the **Quality of Service and Firewalls** screen, select **System Info>Admin Setup>LAN/H.323>H.323>QOS**. The **Quality of Service and Firewalls** screen appears.
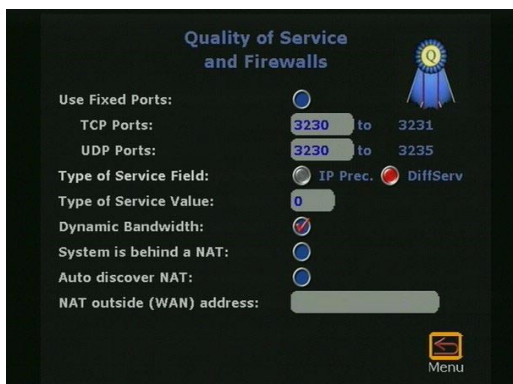
Figure 4-25. Quality of Service and Firewall Screen

In this screen, you can configure the following options:

- **Use Fixed Ports—**Specify the fixed ports assigned to the ViewStation FX or VS4000 when working with a firewall. For information on port assignments in multi-point calls, refer to "Multi-Point Calls and Firewall Information," on page 59.

- **Type of Service Field—**Select one of the following two options:

    - **IP Precedence—**This is a number that represents the level of priority given to IP packages sent to the ViewStation FX or VS4000. The value can be between 0 and 7. If this option is selected, enter the value in the **Type of Service Value** field.

    - **DiffServ—**This is a number that also represents a priority level. The value can be between 0 and 63. If this option is selected, enter the value in the **Type of Service Value** field.

- **Type of Service Value—**Enter the value of the **Type of Service Field** option you have selected above **(IP Precedence** or **Diffserv)**.

- **Dynamic Bandwidth**—Specify use of dynamic bandwidth allocation. The ViewStation FX and VS4000 dynamic bandwidth function automatically finds the optimum line speed for a call. If you experience excessive packet loss while in a call, the dynamic bandwidth function decrements the line speed until there is no packet loss. After some time with no packet loss, the dynamic bandwidth function incrementally increases line speed until packet loss occurs. At this point, the dynamic bandwidth function lowers the line speed one increment to ensure minimal packet loss with maximum throughput. This is supported in calls with end points that also support dynamic bandwidth.

- **System is behind a NAT**—This option instructs the ViewStation FX or VS4000 to use the IP address that appears in the **NAT Outside (WAN) Address** field as its external IP address. When using a Virtual Private Network (VPN) for your network connection, make sure that **System is behind a NAT** is *not* selected.

- **Auto discover NAT**—When this option is selected, the ViewStation FX or VS4000 can get the IP address from the NAT device.

- **NAT outside (WAN) address**—Specify the external IP address used by your NAT. If the ViewStation FX or VS4000 is unable to discover your external IP address automatically, you can enter it here.

For more information about configuring your ViewStation FX or VS4000 for operation behind a NAT (Network Address Translation), see "Network Address Translation," on page 203.

Dialing Speeds

To access the **Dialing Speeds** screen, select **System Info**>**Admin Setup**>**LAN/H.323**>**H.323**>**Dialing Speeds**. The **Dialing Speeds** screen appears.
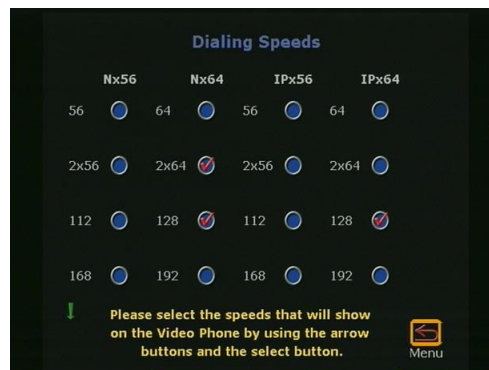
Figure 4-26. Dialing Speeds Screen

On this screen, you can set the dialing speeds that are available when placing a call. You can set a limited number of speeds to simplify dialing for your users.

Gateway & Gatekeeper

The following screens (**Gateway & Gatekeeper**, **Gateway Number**, and **Gateway Setup**) are part of a complex configuration process that results in Polycom OneDial™, a Polycom proprietary feature that lets you place calls and create multi-point conferences while hiding the complicated configuration steps, numbers, prefixes codes, etc. For more configuration information on Polycom OneDial and the Global Directory, refer to Appendix J, "Polycom OneDial™ and the Global Directory," on page 269.

A Gatekeeper is a "network administrator" that supervises the network traffic going through it. It manages functions such as address resolution, bandwidth control, admission control, etc. If you are not registered with a Gatekeeper, you may not be authorized to place IP calls.

A Gateway is a node on two networks that connects two otherwise incompatible networks. It usually performs code and protocol conversion processes.

A word of caution: The following configuration screens require an excellent understanding of Gateways and Gatekeepers. Configuring these options should best be handled by knowledgeable network administrators.

To access the **Gateway & Gatekeeper** screen, select **System Info**>**Admin Setup**>**LAN/H.323**>**H.323**>**Gateway & Gatekeeper**. The **Gateway & Gatekeeper** screen appears.

Note   Configuring settings in this screen has no effect if you are not using a Gatekeeper or Gateway.
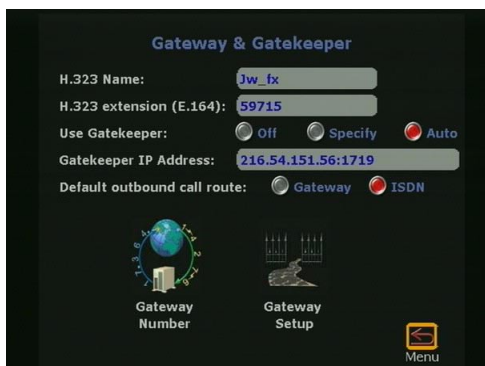
Figure **4-27**. Gateway and Gatekeeper Screen

On this screen, you can set the following options:

* **H.323 Name**—If you are registered with the Gatekeeper, this is the name that can be used to call your ViewStation FX or VS4000.

* **H.323 extension (E.164)**—H.323 extensions are needed for inbound calls going through a Gateway. This extension number is associated with a specific LAN device. Incoming callers are prompted to enter the H.323 extension to access a specific LAN device behind the Gateway. This number may be assigned by the telephone company or your network administrator.

* **Use Gatekeeper**

    * **Off**—If you do not want to access a Gatekeeper, select the **Off** option.

> **Note** A Gatekeeper is not required to make IP-to-IP LAN calls. In these situations, select the **Off** option.

- **Specify**—To specify a Gatekeeper, select the **Specify** option and enter the Gatekeeper's IP address or name (for example: gatekeeper.companyname.usa.com) in the **Gatekeeper's IP Address** field. This information is available from your network administrator.

- **Auto**—To have the ViewStation FX or VS4000 automatically find an available Gatekeeper, select the **Auto** option.

- **Gatekeeper IP Address**—If you have selected **Specify** under **Use Gatekeeper**, enter the Gatekeeper's IP address or name in this field.

- **Default outbound call route**—This field is only visible if a Gateway or ISDN has been selected previously.

  - **Gateway**—Select this option if your outbound call needs to be handled by a Gateway. This information can be obtained from your network administrator.

  - **ISDN**—Select this option if your ViewStation FX or VS4000 is connected to ISDN line. **ISDN** is the default.

Gateway Number

To access the **Gateway Number** screen, select **System Info**>**Admin Setup**>**LAN/H.323**>**H.323**>**Gateway & Gatekeeper**>**Gateway Number**. The **Gateway Number** screen appears.
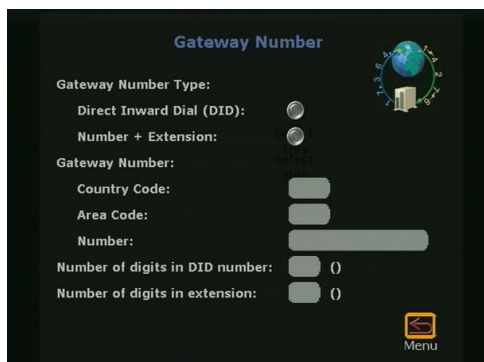
Figure 4-28. Gateway Number Screen

On this screen, you can configure the following options:

- **Gateway Number Type**

  - **Direct Inward Dial (DID)**—When using DID, the number of digits in the DID is that portion of the full DID that the Gateway will be given from the ISDN service provider as the Called Party Line Identifier. This, in turn, will be passed to the Gatekeeper for address resolution. The endpoint needs to register this portion of the DID as an E.164 alias with the Gatekeeper in order for this to work.

  - **Number + Extension**—If enabled, this option allows the call to go through directly (it dials the Gateway number + ## + Extension as one number).

- **Gateway Number**—This is the number that is used by the outside world (WAN) to access your LAN. To access a specific device on the LAN, the **Gateway Number** needs an H.323 extension (described in **"Gateway & Gatekeeper," on page 147**). Enter the **Country Code**, **Area Code**, and **Number** information.

- **Number of digits in DID number**—This is determined by your network administrator.

- **Number of digits in extension**—This is determined by your network administrator.

Gateway (Gateway Setup)

To access the **Gateway** screen, select **System Info**>**Admin Setup**>**LAN/H.323**>**H.323**>**Gateway & Gatekeeper**>**Gateway Setup**. The **Gateway** screen appears:.
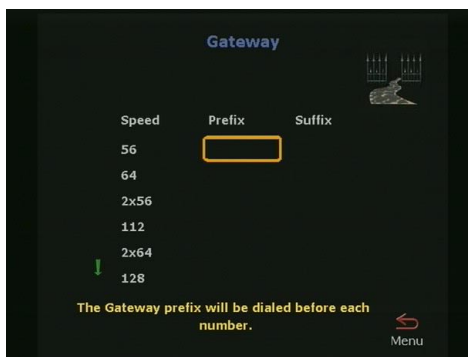
Figure 4-29. Gateway Screen

You can configure the prefix or suffix that is sent to the Gatekeeper. The prefix identifies which Gateway is used to dial a call at a particular data rate. The Gatekeeper then directs the call to the Gateway that is identified with a prefix.

For example, the ViewStation FX or VS4000 inserts the prefix "90" before the number when dialing a 256 Kbps Gateway call. The prefix tells the Gatekeeper which Gateway to use to dial the 256 Kbps call.

To determine the appropriate codes for the call speeds, consult your Gateway instruction manual. These codes are programmed into the Gateway and Gatekeeper. This information should be configured by a knowledgeable network administrator.

Streaming

To access the **Streaming** screen, select **System Info**>**Admin Setup**>**LAN/H.323**>**Streaming**. The **Streaming** screen appears:
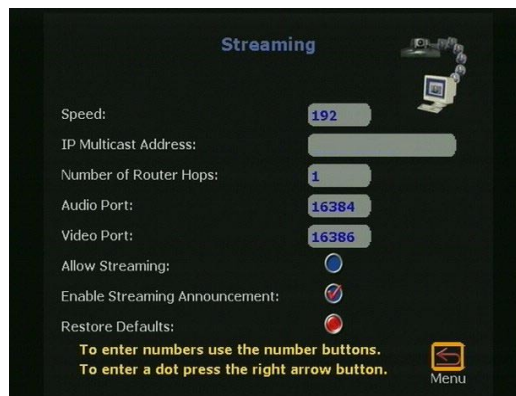
Figure 4-30. Streaming Screen

This screen allows you to set up the streaming parameters. You can configure or modify the following options:

- **Speed**—Select the speed (192, 256, 384, 512 Kbps) you are allowing for streaming. Consult your network manager, as this may affect the network bandwidth.

- **IP Multicast Address**—A default address is entered for you based on your serial number. This ensures that you do not have the same multicast address as another ViewStation FX or

VS4000. You can change this address. This is the address of a relay server that unicasts the stream to multiple endpoints.

- **Number of Router Hops**—This is the number of router you are allowing your stream to go through. This allows you to control who can see your streaming video.

- **Audio Port**—This is a fixed port. This may be changed by your network manager if a user needs to go through the firewall.

- **Video Port**—This is a fixed port. This may be changed by your network manager if a user needs to go through the firewall.

- **Allow Streaming**—When this option is enabled, the icon on the main screen of the user interface changes from **Telephone** to **Call Type**. Click **Call Type** to access the **Streaming Call** screen. In the **Streaming Call** screen, you can set a **Meeting Password**. Click the **Start** icon to start streaming.

- **Enable Streaming Announcement**—When this option is enabled, the names of users logged on to your ViewStation FX or VS4000 are displayed on screen.

- **Restore Defaults**—Selecting this option restores the Speed, IP Multicast Address, Number of Router Hops, Audio Port, and Video Port defaults.

SNMP Setup

To access the **SNMP Setup** screen, select **System Info**>**Admin Setup**>**LAN/H.323**>**SNMP**. The **SNMP Setup** screen appears.

Figure 4-31. SNMP Setup Screen

SNMP (Simple Network Management Protocol) is a set of protocols used to manage complex networks. SNMP tells the network if a

device or operation is functioning properly. The ViewStation FX or VS4000 sends SNMP reports on the following:

- Low battery power in the remote control.
- System is being powered on after a long time powered off.
- Authentication failure—someone is attempting to log in as an administrator with the wrong password.
- Authentication success—someone has logged on successfully as an administrator.
- Call failed for reason other than a busy line.
- A user has asked for help from the Technical Assistance Center.
- A ViewStation FX or VS4000 is in a telephone or video call.
- A telephone or video call has disconnected.

You can enter the following information on the **SNMP Setup** screen:

- **Enable SNMP**—Enable or disable SNMP in this field.
- **Administrator Contact Name**—Enter the name of the person responsible for remote management of this system. The default setting for this field is "IT Administrator."
- **SNMP Console IP Address**—Enter the IP address of the SNMP traps sent by the ViewStation FX or VS4000. Enter 0.0.0.0 in this field if any SNMP management console is capable of receiving information from this agent.
- **Location Name**—Enter the location of the ViewStation FX or VS4000. This field defaults to your ViewStation FX or VS4000 system name @ your country name.
- **Community Name**—Enter the SNMP management community in which you want to enable this agent. The default setting for this field is "Public."
- **System Description**—This field displays the type of videoconferencing device. You cannot edit this field.

Global Address

To use the features accessible from this screen, your organization must use Polycom Global Management System (GMS) software.

To access the **Global Address** screen, select **System Info>Admin Setup>LAN/H.323>Global Address**.

Figure 4-32. Global Address Screen

From the **Global Address** screen, you can access the **Global Address (Server)**, **Global Address Book Preferences**, **Dialing Rules 1**, and **Dialing Rules 2** screens.

Global Address (Server)

To access the **Global Address (Server)** screen, select **System Info>Admin Setup>LAN/H.323>Global Address>Server**.
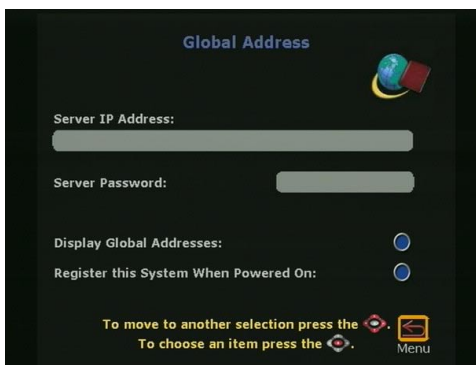
Figure 4-33. Global Address (Server) Screen

You can configure the following GAB server options on this screen:

- **Server IP Address**—Enter the IP address of the GAB server.

- **Server Password**—Enter the GAB server password, if there is one.

- **Display Global Addresses**—When you enable this option, global addresses appear in the ViewStation FX or VS4000 Address Book.

- **Register this System When Powered On**—When you enable this option, the ViewStation FX or VS4000's IP address appears in the GAB when powered on the system. If you do not enable this option, the ViewStation FX or VS4000 has access to the GAB, but does not appear in the Global Address Books of other ViewStations FX or VS4000s.

Global Address Book Preferences

To access the **Global Address Book Preferences** screen, select **System Info>Admin Setup>LAN/H.323>Global Address> Preferences**.
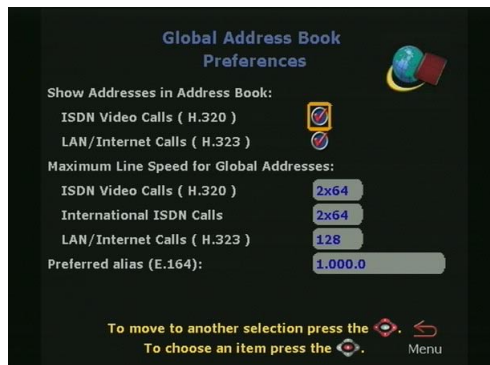
Figure 4-34. Global Address Book Preferences Screen

In this screen, you can configure the following GAB display and dialing preferences:

- **Show Addresses in Address Book**—Enable the types of video numbers you want to see in your Global Address Book. When you enable this option, IP addresses appear in the ViewStation FX or VS4000 Address Book. Only call type options that you enabled on the **Call Preference** screen appear on this screen.

- **Maximum Line Speed for Global Addresses**—Set the line speed for each type of call you enabled (**ISDN Video Calls**, **International ISDN Calls**, **LAN/Internet Calls**). The speeds you select affect only Global Address Book entries in the ViewStation FX or VS4000 Address Book.

- **Preferred Alias (E.164)**—Select this field to access the **Preferred Alias** screen. Select **ISDN**, **Gateway**, or **Extension** as your preferred alias.

Dialing Rules 1

To access the **Dialing Rules 1** screen, select **System Info**>**Admin Setup**>**LAN/H.323**>**Global Address**>**Dialing Rules 1**.

Figure 4-35. Dialing Rules 1 Screen

On this screen, you can set network dialing rules.

ViewStation FX or VS4000 number(s) are automatically normalized for the address books of other ViewStation FX or VS4000s: Global Dial takes into account the numbers, area codes (or city codes), country codes, and international dialing access codes for ViewStation FX or VS4000 that are placing and receiving calls.

For example, if you live in Paris, your ViewStation FX or VS4000 number appears correctly in the address books of a system in Paris, a system in Sydney, a system in New York, and a system in Cape Town.

If your system is on your organization's private network as well as a public network, you might have to add additional information that can help the GAB decide how you call other systems on or off your

private network. If your system uses only a public network, you do not need to enter anything in this ViewStation FX or VS4000 screen.

The GAB uses the following dialing rules when calling a public network or a private network.

Call From:	Call To:	Type of Call Placed:
Public Network	Public Network	Public Network
Public Network	Private Network	Public Network
Private Network	Public Network	Public Network
Private Network	Private Network	Private Network

You can configure the following network dialing rules:

- **Number of digits in Extension**—Set the number of digits in your dialing extension. This usually applies to systems that are on a PBX. Sites that dial your system with the same area code (or city code) and prefix dial use only your extension number. For example, if your ViewStation FX or VS4000 number is 1 512 231 5432 and you set 5 as the number of digits in your extension, a system with the number 1 512 231 5632 will use15432 to dial your system.

- **International Dialing Prefix**—Enter the prefix that must be used to place international calls. This prefix is automatically appended to any international calls made from the GAB. This overrides the international dialing prefix that is normally transparently set in the ViewStation FX or VS4000 **Country** screen.

- **Public Network Access**—Enable this option if your system can dial outside of your private network.

- **Public Network Dialing Prefix**—Enter a dialing prefix as required by your PBX to dial out to the public network. This prefix is automatically inserted before the dialing numbers to the public network from the GAB.

- **Public Network (same area code) Prefix**—Enter a prefix if one is required to call within the same area code.

- **Private Network Access**—Enable this option if your organization uses a private network for calls.

- **Private Network Dialing Prefix**—Enter the dialing prefix required to dial within your private network. This prefix is used if

your ViewStation FX or VS4000 and the ViewStation FX or VS4000 you are calling have access to your organization's private network.

Dialing Rules 2

To access the **Dialing Rules 2** screen, select **System Info**>**Admin Setup**>**LAN/H.323**>**Global Address**>**Dialing Rules 2**. On this screen, you can set network dialing prefixes for different area codes.
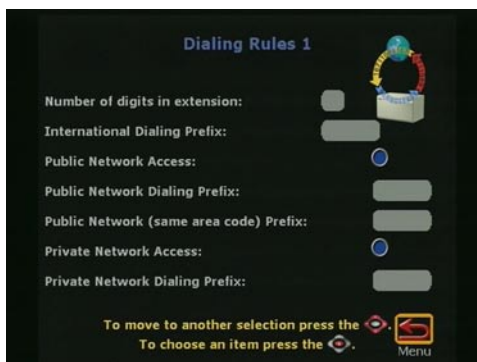

Figure 4-36. Dialing Rules 2 Screen

If your private network requires you to dial prefixes to access certain area codes (or city codes), you can set those prefixes in this screen.

The prefix is dialed before the area code. For example, some sites require you to dial a 9 before dialing a 1-800-xxx-xxxx number.

Enable the **Always Dial Area Code** option if you must dial the area code to sites that have the same area code as your ViewStation FX or VS4000. This is sometimes necessary for 10-digit dialing.

Global Management (Main)

To access the **Global Management** screen, select **System Info**>**Admin Setup**>**LAN/H.323**>**Global Management**.

To use the features accessible from this screen, your organization must use Polycom Global Management System (GMS) software. GMS is used to monitor, configure, and maintain the ViewStation FX or VS4000 from a remote location.

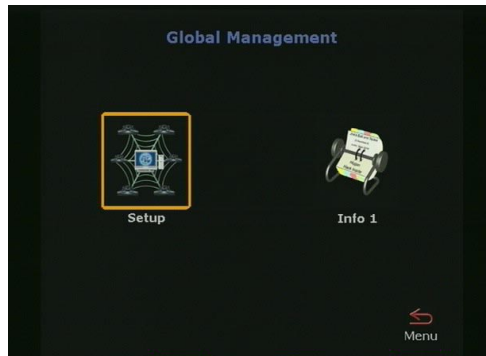**Figure 4-37.** Global Management (Main) Screen

Global Management (Setup)

To access the **Global Management** setup screen, select **System Info**>**Admin Setup**>**LAN/H.323**>**Global Management**>**Setup**. The following **Global Management** setup screen appears. Select the **Setup** icon to access the **Global Management** screen.
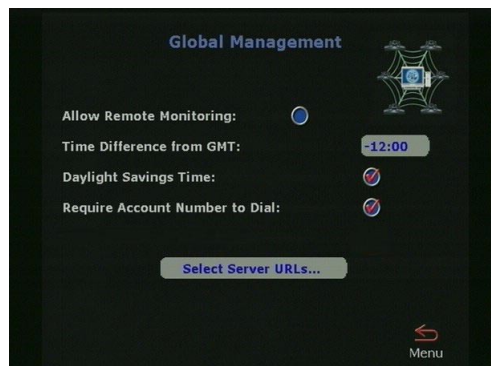
Figure 4-38. Global Management (Setup) Screen

You can set the following options on this screen:

- **Allow Remote Monitoring**—Enable this option to allow the system administrator to view a call or view the room where the ViewStation FX or VS4000 camera is installed.

  For privacy reasons, you can enable this option only from the near-site ViewStation FX or VS4000. Also, if you want to protect your office privacy, disable this option.

  When the **Allow Remote Monitoring** option is enabled, you can request help by pressing INFO twice on the ViewStation FX or VS4000 remote control. You can add a system to GMS by entering the global manager IP address and restarting the ViewStation FX or VS4000.

- **Time Difference from GMT**—Enter the time difference from where the ViewStation FX or VS4000 is installed and Greenwich Mean Time (GMT). This allows the global manager to view the local time of the managed ViewStation FX or VS4000.

- **Daylight Savings Time**—Enable this option if the area where the ViewStation FX or VS4000 is installed participates in Daylight Savings Time.

- **Require Account Number to Dial**—You must use GMS 2.0 or later to use this option. This feature is used to log calls to a specific account so that they can be tracked and billed to the appropriate departments. When this option is selected, you cannot make a call without first entering an account number. This account number is saved in the GMS server database along with information specific to the call. Typically, the GMS administrator assigns the account number.

- **Validate Account Number**—This option is visible if the **Require Account Number to Dial** is enabled. When the call connects, the ViewStation FX or VS4000 verifies that the account exists with the GMS server. If the account does not exist, the call is disconnected.

- **Global Managers URLs (Select Server URLs)**—Select this option to access the **Global Managers URLs** screen. The following screen appears:
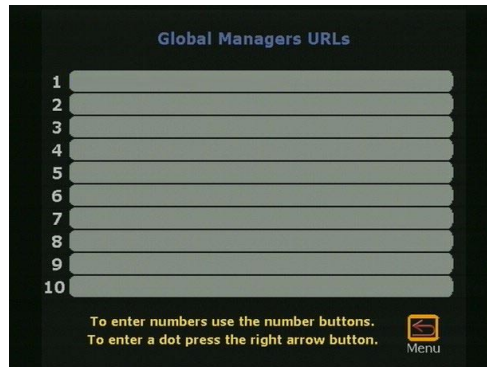
Figure 4-39. Global Manager URLs Screen
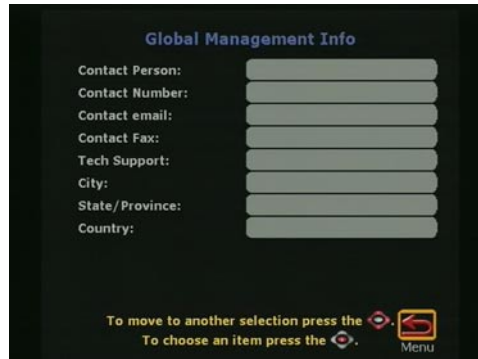
This screen lists the GMS servers that remotely manage your system. When you are registered with the GMS, this information is automatically displayed on this screen. In some instances, you may add GMS server IP addresses manually. This information is provided by your network manager.

The first field contains the address of the primary GMS server that performs account validation (see **Validate Account Number** above).

If you enter an incorrect IP address in this field, you no longer are able to access the GAB server and its global addresses.

Global Management Info

To access the **Global Management Info** screen, select **System Info**>**Admin Setup**>**LAN/H.323**>**Info 1**. The following screen appears:

Figure 4-40. Global Management Info Screen

On this screen, enter the contact information of the person who administrates GMS. If a ViewStation FX or VS4000 user needs assistance, he can refer to the contact information on this screen.

5

System Information and Diagnostics

This chapter contains information about the **Diagnostics** screens, the **User Setup** screen, and the **Admin Setup** screens.

It also describes the **System Information** screen, from which the the **Diagnostics**, **User Setup** and **Admin Setup** screens are accessed.

System Information

You can access the system and diagnostic icons from the **System Information** screen by selecting the **System Info** icon and pressing the ⬤ button on the remote control. The **System Information** screen appears.

Figure 5-1. System Information Screen

The **System Information** screen displays information that cannot be changed. The following information is provided:

- **System Name**—The system name is the name assigned to the ViewStation FX or VS4000 by your network administrator.

- **Video Numbers**—Video numbers are the ISDN numbers assigned to the ViewStation FX or VS4000.

- **Gateway Number**—This field displays the Gateway number (followed by the Extension) that has already been configured in the **Gateway Number** screen. This field is not visible if there is no configured Gateway. For more information about the Gateway, see "Gateway & Gatekeeper," on page 147.

- **LAN Host Name**—This is the name assigned to the ViewStation FX or VS4000 for TCP/IP configuration. To set the LAN host name, go to **System Info**>**Admin Setup**>**LAN/H.323**>**LAN/Intranet**.

- **LAN IP Address**—The IP address is assigned automatically through a DHCP server or is set manually (static). To manually set the IP address, go to **System Info**>**Admin Setup**>**LAN/H.323**>**LAN/Intranet**.

- **Software Version**—The software version and the date of the software release are displayed in this field. Additional information about the ViewStation FX or VS4000 software version is located in **System Info**>**Admin Setup**>**Software/Hardware**>**Software**.

- **Serial Number**—The serial number is unique to each ViewStation FX or VS4000. This number is also located on a bar code sticker on the bottom of the unit. This number cannot be modified.

- **Model**—The **ViewStation FX or VS4000** model type is displayed.

The **Diagnostics**, **User Setup**, and **Admin Setup** are displayed at the bottom of the screen. These icons link to screens where you can perform various setup and diagnostic tasks.

Diagnostics

You can view network statistics and perform various diagnostic tests from the ViewStation FX or VS4000's **Diagnostics** screen.

To access the **Diagnostics** screen, select **System Info** and **Diagnostics**. The following screen appears:

Figure 5-2. Diagnostics Screen

The following sections describe network statistics screens and diagnostic tests screens. At any time, you can return to the **Diagnostics** screen by pressing the MENU button on the remote control.

Note   You can also view statistics and run these diagnostic tests from the ViewStation FX or VS4000 Web interface. For information on how to do this, refer to "System Setup and Remote Management," on page 107.

Network Statistics

To access the **Network Statistics** screen, select **System Info**>**Diagnostics**>**Network Stats**.

The **Network Statistics** screen displays the network protocols and data speeds for a video call.

Advanced Network Statistics

To access the **Advanced Network Statistics** screen, select **System Info>Diagnostics>Advanced Stats**.

The **Advanced Network Statistics** screen displays detailed information about the status of your call. Transmit and receive speeds are displayed for both audio and video during a call.

Polycom Video Error Concealment (PVEC). If packet loss is indicated in the **% Packet Loss** field, then the **Video Protocol** field displays **PVEC** in the **Tx** and/or the **Rx** data columns as the active video protocol.

PVEC is a Polycom proprietary video coding algorithm based on the H.263 video coding standard. Its purpose is to transparently remedy video degradation caused by packet loss in an H.323 call. PVEC uses a sophisticated video compensation algorithm to estimate the content of lost video data and seamlessly repair the video. PVEC has proven to be very effective at preserving video quality in the presence of high levels of packet loss. Video quality degradation with the PVEC feature active may indicate that your IP network is not functioning properly.

Without PVEC, packet loss, even minimal, usually causes blurred or frozen frame video. When the FX or VS4000 system detects packet loss, PVEC is activated automatically. Similarly, it is automatically turned off when packet loss becomes negligible.

This feature works in regular video calls, snapshot and 4CIF mode. At this time, it is not operational in dual stream mode and standards based 60 fields video.

Call Status

To access the **Call Status** screen, select **System Info> Diagnostics>Call Status**.

This screen displays call status indicators for each channel used in a call. On this screen, you can determine if any channels are failing in a call. Highlight one of the call progress indicators, and the call number for that channel appears. You can compare this number with the number you dialed, or you can check for a malfunctioning channel.

Color Bars

To access the **Color Bars** screen, select **System Info**>**Diagnostics** >**Color Bar**.

To test the color setting on your television monitor, highlight the **View Color Bars** icon and press the 🔲 button on the remote control. Color bars appear full screen. Use the controls on the television monitor to adjust the color settings.

Press any button on the remote control to return to the **Color Bars** screen.

Audio

To access the **Audio** screen, select **System Info**>**Diagnostics** >**Audio**.

From the **Audio** screen, you can access the **Generate Tone** and the **Audio Meter** screens.

To generate a tone:
1. Highlight the **Generate Tone** icon and press the 🔲 button on the remote control.
2. The **Generate Tone** screen appears with instructions on how to perform this test.
3. Highlight the **Generate Tone** icon again press the 🔲 button on the remote control.
4. When you hear the tone, adjust the volume controls on the ViewStation FX or VS4000 and television monitor to comfortable levels.
5. Press any button to stop the tone.

Note   If the system is in a call the far site also hears the tone.

To view audio levels:
1. Highlight the **Audio Meter** icon and press the 🔲 button on the remote control. The Audio Meter screen indicates the audio level of all audio inputs connected to the ViewStation FX or VS4000.
2. Speak into the microphone to test the audio level.

Near End Loop

To access the **Near End Loop** screen, select **System Info**>**Diagnostics**>**Near End Loop**.

The **Near End Loop** screen allows you to test the encoder/decoder on your ViewStation FX or VS4000. This can help you diagnose a problem with an H.320 video call. If you perform a near-end loop test during a call, the far site sees a loop of itself. Press any button on the remote control to stop the loop.

Reset System

To access the **Reset System** screen, select **System Info**> **Diagnostics**>**Reset System**.

The **Reset System** screen clears existing system configurations. You can erase your system settings and/or your Address Book entries. Once you have reset the system, your system walks you through the system configuration screens as it did when you powered on the ViewStation FX or VS4000 for the first time.

To reset the system, enter the ViewStation FX or VS4000 serial number and select the **Reset** button.

Note   Be sure to copy system information before resetting a system. All settings are lost when you reset the system.

User Setup

The **User Setup** screen is used to set basic options for the ViewStation FX or VS4000.

To access the **User Setup** screen, select **System Info**>**User Setup**.:
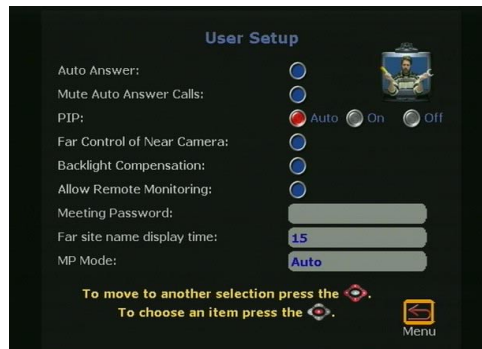
Figure 5-3. User Setup Screen

You can use the **User Setup** screen to set the following options

- **Auto Answer**—The **Auto Answer** option allows the ViewStation FX or VS4000 to automatically answer incoming calls. If this option is not selected, incoming calls ring until they are manually answered or the far site disconnects.

- **Mute Auto Answer Calls**—When this option is selected, the microphone pod is turned off to prevent the far site from hearing the near site when the ViewStation FX or VS4000 is in Auto Answer mode. Both sites are notified that the ViewStation FX or VS4000 is muted with a microphone image located in the lower left side of the main screen. A red light illuminates on the microphone pod when the near site is muted.

- **PIP or Picture-in-Picture**—The PIP feature allows the near site to adjust near-camera views while in a videoconference. When PIP is enabled, the **Camera** icon in the top right corner of the screen disappears when the remote control is placed on a flat surface.The following options are available in PIP mode:

    - **Auto—**The ViewStation FX or VS4000 shows a PIP window when the call is first connected and when the remote control is not resting on a flat surface.

- • **On—**The ViewStation FX or VS4000 shows a PIP window which remains in the lower right corner until the video call is completed.

- • **Off—**The ViewStation SP does not show a PIP window.

- • **Far Control of Near Camera**—This option allows users on the far site to control the camera at the near end. When this option is enabled, a far-site user may control the framing and angle of the camera of the near site by pressing the FAR button on the remote control.

- • **Backlight Compensation**—Backlight compensation is used in conference rooms where the subject appears darker than the background. When enabled, the camera automatically adjusts for a light background.

- • **Allow Remote Monitoring**—Remote monitoring allows a user to remotely view a conference room prior to a scheduled meeting using the ViewStation FX or VS4000 Web interface.

- • **Meeting Password**—The meeting password is used to grant or limit unrestricted access to the non-administrative functions of the ViewStation FX or VS4000's Web interface.

- • **Far site name display time**—This option displays the name of the far site for a defined number of seconds.

  - • **15 seconds**—The far site name is displayed by default for 15 seconds.

  - • **Blank**—The far site name is displayed until the call is ended.

- • **MP Mode**—The MP mode can be set to **Auto**, **Discussion**, **Presentation**, or **Full Screen**. By default, it is set to **Auto**. To change the MP mode, highlight the **MP Mode** field and press the SELECT button on your remote control. The **Multi-Point Setup** screen appears. For more information about MP modes, refer to "Multi-Point Viewing Modes," on page 60.

Admin Setup

To access the **Admin Setup** screen, select **System Info**>**Admin Setup**.

You can view and change the setup of your ViewStation FX or VS4000 from the **Admin Setup** screen.
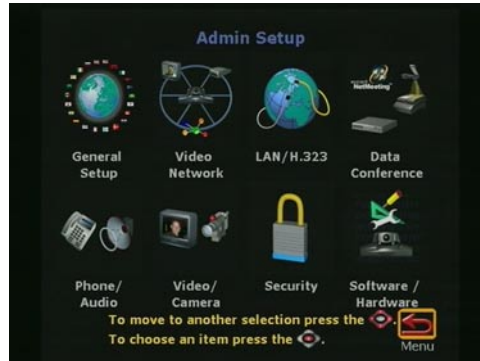
Figure 5-4. Admin Setup Screen

Select the icon of the setup options you want to view or change and press the ⬭ button on the remote control. At any time, you can return to the **Admin Setup** screen by pressing the MENU button on the remote control. Press the CALL•HANG-UP button to return to the Main screen.

Note   You can also view and change the setup of your ViewStation FX or VS4000 from the ViewStation FX or VS4000 Web interface. For information on how to do this, see "System Setup and Remote Management," on page 107.

The following sections describe the screens are grouped under the **Admin Setup** screen.

General Setup

To access the **General Setup** screen, select **System Info>Admin Setup**. The **General Setup** is used to set up basic administrative settings (generally controlled by your network administrator).
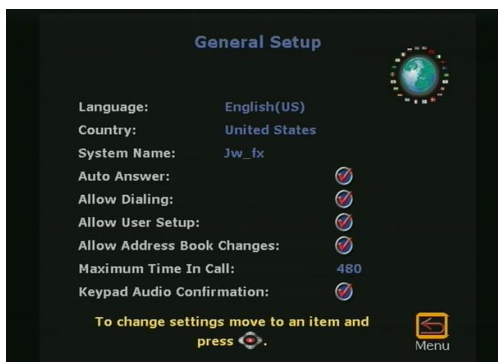
Figure 5-5. General Setup Screen

On this screen, you can change the following general setup options:

*   **Languag**e—Select the language field to access the **Welcom**e screen where the language flags are displayed. Select the appropriate flag associated with the language you wish to use in the ViewStation FX or VS4000 user interface.

*   **Countr**y—Click the **Country** field to access the **Country Se**tup screen.

Figure 5-6. Country Setup Screen

The fields in the **Country Setup** screen allow you to select the country where the ViewStation FX or VS4000 is located. It also

allows you to specify country-specific calling parameters for your location.

- **System Name**—Enter a name for the ViewStation FX or VS4000 using the on-screen keyboard. This can be any combination of alpha-numeric characters up to 34 characters in length.

- **Auto Answer**—Enable this option to have the ViewStation FX or VS4000 answer incoming calls automatically.

- **Allow Dialing**—Enable this option to allow users to place calls from the ViewStation FX or VS4000. If this option is disabled, the ViewStation FX or VS4000 can only receive calls. You can still place calls from the Web interface.

- **Allow User Setup**—This option is used to enable or disable the **User Setup** icon on the **System Info** screen. Administrators can use this option to prevent users from changing the **User Setup** functions.

- **Allow Address Book Changes**—If this option is enabled, then the user has access to the **New**, **Edit**, and **Delete** icons in the **Address Book** screen.

- **Maximum Time in Call**—Enter the maximum number of minutes allowed for call length. When that time has expired in a call, you see a message asking you if you want to hang up or stay in the call. If you do not answer within one minute, the call automatically disconnects.

- **Keypad Audio Confirmation**—This option enables an audio response (English language) when a numeric key is depressed on the remote control.

Network Setup

To access the **Network Setup** screen, select **System Info**>**Admin Setup**>**Video Network**.

From the **Network Setup** screen, you can access screens that are common to the V.35, PRI, and BRI network interfaces, and screens that are specific to each network interface, as listed below:

<u>For a V.35 network interface:</u>

Multi-Point Setup (w/H.323)—See *"Multi-Point Viewing Modes,"* on page 60.

Call Preference—See *"Call Preference," on page 20*.

Video Network—See "Initial System Configuration," on page 17. From the **Video Network** screen, you can also access the following configuration screens:
- • **Dialing Speeds**—See "Dialing Speeds," on page 123.
- • **Broadcast Mode**—See "Broadcast Mode," on page 122.
- • **Advanced Dialing**—See "Advanced Dialing," on page 124.

Numbers—See *"PRI Video Numbers," on page 127*.

Advanced V.35 Setup—See the "Advanced V.35 Configuration," on page 121.

<u>For PRI interfaces:</u>

Inverse Multiplexer Information (IMUX)—Click the **IMUX** icon to access the following configuration screens:
- • **Numbers (PRI Video Numbers)**—See "PRI Video Numbers," on page 127.
- • **PRI Network**—From this screen, you can access these configuration screens:
  - • **PRI Information**—See "Advanced PRI Configuration," on page 126.
  - • **PRI Setup**—"PRI Network (T1 and E1)," on page 127.
    - • **Advanced PRI Setup**—See "Advanced PRI Configuration," on page 126.
  - • **PRI Status**—"PRI Status (T1 and E1)," on page 130.

- • **Audio Quality**—See **"Audio Quality Preference," on page 134**.
- • **Advanced Dialing**—See "Advanced Dialing," on page 124.
- • **Dialing Speeds**—See "Dialing Speeds," on page 123.

Call Preference—See "Call Preference," on page 20.

Multi-Point Setup—See "Multi-Point Viewing Modes," on page 60.

Dialing Speeds—See "Dialing Speeds," on page 123.

<u>For a BRI network interface:</u>

Inverse Multiplexer Information (IMUX)—Click the **IMUX** icon to access the following configuration screens:

- • **Numbers (ISDN Video Numbers)**—See **"ISDN Video Numbers," on page 137**.
- • **SPIDS (Auto Detect SPIDs)**—See "Auto Detect SPIDs," on page 137.
- • **Audio Quality**—See "Audio Quality Preference," on page 134.
- • **Advanced Dialing**—See "Advanced Dialing," on page 139.
- • **Dialing Speeds**—See "Dialing Speeds," on page 123.

Call Preference—See "Call Preference," on page 20.

Multi-Point Setup—See "Multi-Point Viewing Modes," on page 60.

ISDN Video Network—The **ISDN Video Network** screen contains information entered during system setup.

The following information can be further modified by the user:

- • **Country Code**: Country Code associated with the country where the ViewStation FX or VS4000 is used.
- • **Area Code**: Area Code or STD Code where the ViewStation FX or VS4000 is used.
- • **Number A**: Primary ISDN number assigned to the ViewStation FX or VS4000.
- • **Number B**: Secondary ISDN number assigned to the ViewStation FX or VS4000.

- **ISDN Switch Protocol:** Select the appropriate ISDN switch protocols. Contact the ISDN provider to determine the ISDN switch protocol.
- **ISDN Number Prefix:** ISDN number prefix used to access an outside line if the ViewStation FX or VS4000 is behind a PBX.

LAN

To access the **LAN** screen, select **System Info>Admin Setup> LAN/H.323**. The **LAN** screen appears.

Figure 5-7. LAN Screen

For information on how to change the LAN settings found on the LAN sub-screens (**LAN/Intranet**, **H.323**, **Streaming**, **SNMP**, **Global Address**, and **Global Management**), refer to the "Advanced LAN/H.323 Configuration," on page 141.

Data Conference

The ViewStation FX or VS4000 is T.120-compliant and supports data conferencing when paired with either a ShowStation IP or Microsoft NetMeeting.

Data conferencing features are available only on point-to-point video calls or with external H.320 bridges/MCUs that support this feature.

Data conferencing is only available during H.320 calls and must be supported by far site systems.

To access the **Data Conference** screen, select **System Info**>**Admin Setup**>**Data Conference**. The **Data Conference** screen appears.
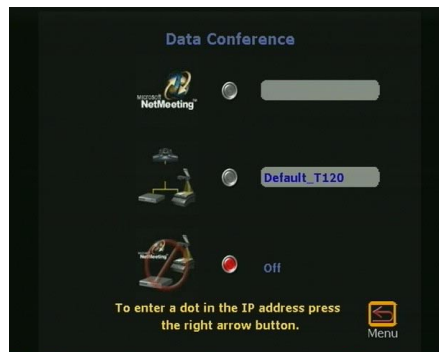
Figure 5-8. Data Conference Screen

From this screen, you can enable data conferencing through Microsoft NetMeeting or a ShowStation IP as described in the following section.

Enable Data Conferencing on the ViewStation FX or VS4000

If you want to use the ViewStation FX or VS4000 data conferencing capabilities, you must enable them on the ViewStation FX or VS4000 as follows:

1. Select **System Info**>**Admin Setup**>**Data Conference**. The **Data Conference** screen appears.

2. Enable either the NetMeeting or ShowStation IP option. The ShowStation IP option appears only if a ShowStation is connected to the ViewStation FX, the VS4000, or the LAN.

Note   Data conferencing is only available during H.320 calls and must be supported by far-site systems

Using a ShowStation IP

The ShowStation works best when you have two ViewStation FX or VS4000 systems, two ShowStations with LAN cards, and an RJ-45 cable. Follow these steps to connect and use this configuration:

1. Use the provided blue RJ-45 cable to connect the ShowStation LAN card to the blue LAN port on the back of the ViewStation

FX or VS4000. You can also connect the ShowStation and ViewStation FX or the VS4000 to the same LAN.

2. Find the LAN name of the ShowStation. Click the **Toolbar** icon on the main menu of the ShowStation. The **Site Name** is under the **Preferences** tab.

3. Power on the ViewStation FX or VS4000.

4. Select **System Info**>**Admin Setup**>**Data Conference** and enter the name of the ShowStation on the **Data Conference** screen.

5. Place a video call between the two ViewStation FXs or the VS4000s. When the ViewStation FXs or VS4000s connect, the ShowStations synchronize with one another automatically. Once they connect, a whiteboard appears on the ShowStations' LCD displays. It takes approximately 30 seconds for the whiteboard to appear once the video call is placed. You are now ready to use your ShowStation.

Using Microsoft NetMeeting

For more information about data conferencing using NetMeeting, refer to "Configure NetMeeting," on page 113.

Telephone & Audio

To access the **Telephone & Audio** screen, select **System Info**>**Admin Setup**>**Phone/Audio**.
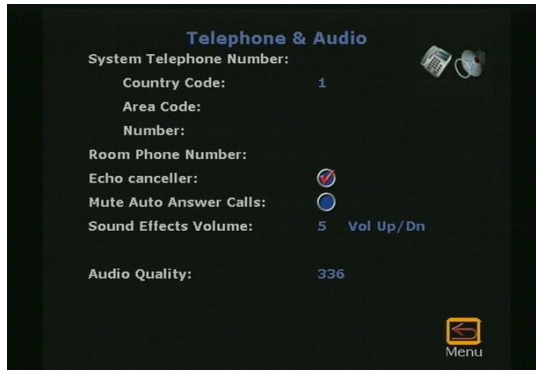

Figure 5-9. Telephone & Audio Screen

The **Telephone & Audio** screen is used to configure the ViewStation FX or the VS4000 system telephone information and audio properties.

- **System Telephone Number**—Enter the **Country Code**, **Area Code**, and **Number** associated with the ViewStation FX or VS4000 system telephone number.

- **Room Telephone Number—** You can also enter the telephone number that is assigned to the room where the ViewStation FX or VS4000 is located.

- **Echo Canceller**—This option is enabled by default. It prevents the user from hearing his voice loop back from the remote site.

- **Mute Auto Answer Calls**—You can mute or un-mute incoming calls. Incoming calls are muted by default until you press the button on top of the microphone pod or press the mute button on the remote control.

- **Sound Effects Volume**—This option allows you to adjust the volume of the sounds made by the ViewStation FX or the VS4000 when you select an object on the screen with the remote control. Use the volume keys (VOL) on the remote control.

- **Audio Quality—**Select this field to access the **Audio Quality Preference** screen. This screen can also be accessed from the **Audio Quality** screen **(System Info**>**Admin Setup**>**Video Network**>**IMUX**>**Audio Quality**). In this screen, you can set the call speed threshold that determines which audio protocol is used. For more information about this option and audio error concealment, refer to "Audio Quality Preference," on page 134.

    Note   Changing the audio quality preferences in a call can only be done in an H.320 call. No changes can be made while in an H.323 call.

Video and Cameras

To access the **Video and Cameras** screen, select **System Info**>**Admin Setup**>**Video/Camera**. The following screen appears:
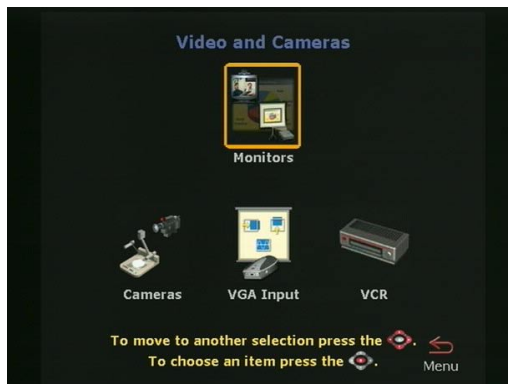
Figure 5-10. Video and Cameras Screen

From this screen you can access the following sub-screens:

Monitors. (page 180)

Cameras. (page 184*)*

VCR Setup. (**page 186***)*

VGA Input (only if a Visual Concert FX is connected to your ViewStation FX or VS4000). (page 187).

These screens and their related sub-screens are described in the following sections.

Monitors

To access the **Monitors** screen, select **System Info**>**Admin Setup**>**Video/Camera**>**Monitors**. From this screen, you can access the **TV Monitors** and the **Graphics Monitor** screens.

TV Monitors

To access the **TV Monitors** screen, select **System Info>Admin Setup>Video/Camera>Monitors>TV Monitors**. The following screen appears:

Figure 5-11. TV Monitors Screen

The following options can be enabled on this screen:

- **Display Graphics in a Call—**This option is enabled by default. If you wish to turn off all on-screen graphics (including icons and informational text) in a live video call, deselect this option.

- **Snapshot Timeout**—By default, all slides and snapshots are displayed for a period of 4 minutes. When the display times out after four minutes, the FX or VS4000 automatically returns to live video. However, when this option is disabled, the snapshot or slide stays on screen indefinitely until the user presses the snapshot button on the remote control to return to live video.

Note   If the **Snapshot Timeout** option is not disabled on both sides, the ViewStation FX or VS4000 reverts to its default timeout of four minutes.

- **Number of Monitors**—Select the number of monitors connected to your system.

Note   Four monitors can be supported simultaneously in a multiway call. For more information about this feature, refer to "Four-Monitor Support," on page 65.

- **PIP**—Select a Picture-in-Picture (PIP) mode. If you select **On**, the PIP is displayed continuously. If you select **Auto**, the PIP appears and disappears automatically depending on the position of the remote control. If you select **Off**, the PIP is never displayed.
- **60 fields/sec (ITU) at >= 512Kbps (Wide Screen Video)** Enable this option to have the monitor display in wide screen video format in H.323 or H.320 calls at 512 Kbps and above. This option only works between FX or VS4000 systems with software version 4.0 and higher. Otherwise, if one of the systems has a software version older than 4.0, the proprietary letter box format is supported.

Graphics Monitor

To access the **Graphics Monitor** screen, select **System Info>Admin Setup>Video/Camera>Monitors>Graphics Monitor**. The following screen appears:
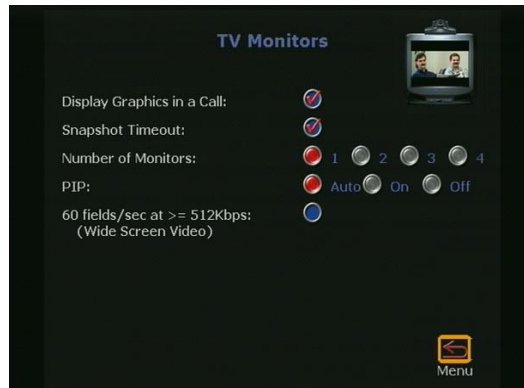

Figure 5-12. Graphics Monitor Screen
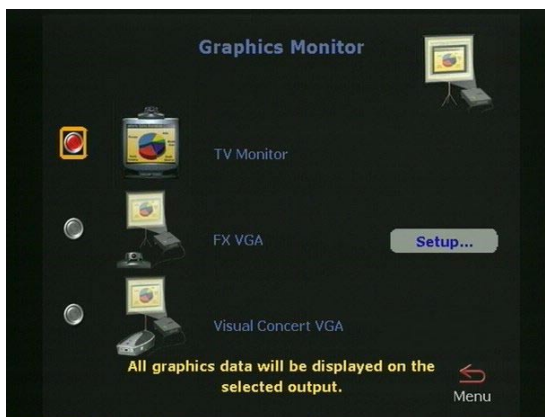
This screen lets you select the appropriate VGA monitor configuration for your VGA monitor. The following options are available:

- **TV Monitor**—When this option is selected, no VGA monitor is available, and the graphics and video are displayed on the TV monitor.
- **FX VGA**—Enable this option if you have a high-resolution VGA monitor or projector connected to the rear panel of the

ViewStation FX or VS4000. To set up the resolution of your VGA monitor, select **Setup**. The **FX VGA Monitor** screen appears.
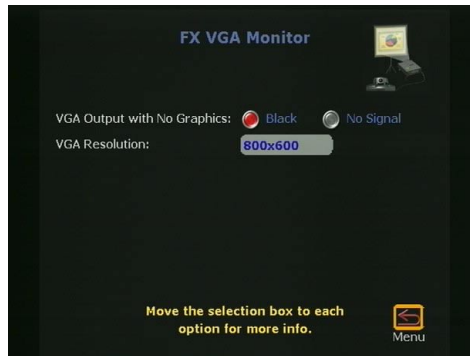
Figure 5-13. FX VGA Monitor Screen

The following two options are available:

- **VGA Output with No Graphics**—Select **Black**, if you want the screen to turn black when there is no graphics or video. If you select **No Signal**, the VGA monitor will react as if the VGA monitor is not connected.

- **VGA Resolution**—Select the **VGA Resolution** field to access the drop-down selection menu. Select the maximum resolution that your monitor or projector can support. Consult the user manual provided with the VGA monitor or projector for performance.

- **Visual Concert VGA**—Enable this option if Visual Concert FX is connected to your ViewStation FX or VS4000 and the graphics monitor is directly connected to Visual Concert FX. When you select this option, you enable your system to display your computer desktop on your ViewStation FX or VS4000 VGA monitor.

Cameras

To access the **Cameras** screen, select **System Info**>**Admin Setup**>**Video/Camera**>**Cameras**.
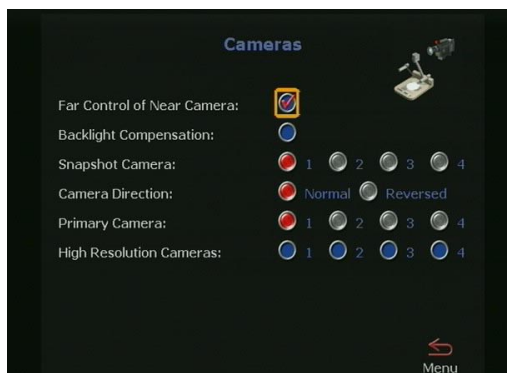
Figure 5-14. Cameras Screen

The following options are available:

- **Far Control of Near Camera**—When you enable this option, the far site, while in a call can control your camera.

- **Backlight Compensation**—Enable this option if your background is too bright.

- **Snapshot Camera**—Select the default camera from which you want to send snapshots.

- **Camera Direction**—Select whether the camera moves in the same direction as the arrows on the remote control or in opposite directions.

- **Primary Camera**—Select the camera that is used when you power on the ViewStation FX or the VS4000. You cannot disconnect the main camera, but you do not have to set it as the primary camera.

- **High Resolution Cameras—**Select this option to send 4CIF graphics. In the **High Resolution Cameras** field, you can set each of the following devices to 4CIF (a video resolution standard) by selecting its corresponding number where:

  1 = Primary Camera

  2 = Document Camera

  3 = VCR

  4 = Secondary Camera

About 4CIF. Both the ViewStation FX and VS4000 support 4CIF, a video resolution standard defined by 704 pixels per line and 576 lines per video image. 4CIF resolution is four times higher than CIF (352 pixels per line and 288 lines per video image), a standard commonly supported on video communications systems. With 4CIF, more data is transmitted and processed, resulting in crisper images. 4CIF should only be implemented on document cameras or VGA scan converters and is not suggested nor supported for use in live video mode.

4CIF only works between video communications systems supporting this standard. If the receiving system does not support 4CIF, then the transmitting system does not send 4CIF data.

If your system is a VS4000, you have access to camera setup options specific to the VS4000. Select **VS4000 Camera Setup** in the current **Cameras** screen. The following screen appears:

Figure 5-15. VS4000 Camera Setup Screen
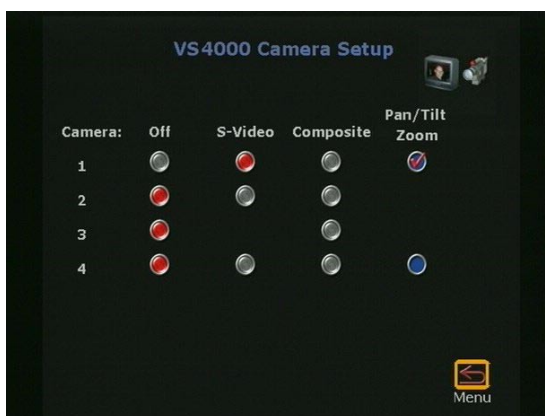
This screen lets you configure your camera equipment for the VS4000 only. You can connect four cameras to your VS4000. However, you can set three cameras to S-video mode, and two to pan/tilt/zoom mode.

To disable cameras, set your camera inputs as S-video or composite (VS4000 only), and enable pan/tilt/zoom capability on a camera. Select the appropriate radio button or check circle.

VCR Setup

To access the **VCR Setup** screen, select **System Info**>**Admin Setup**>**Video/Camera**>**VCR**. The following screen appears:
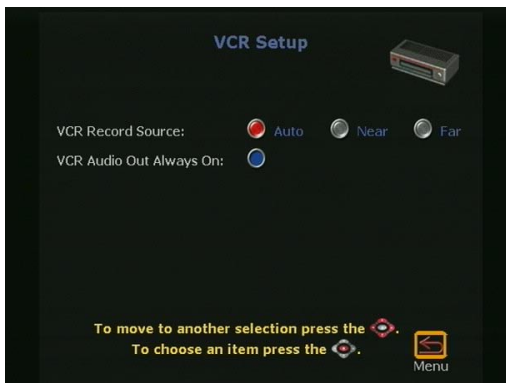
Figure **5-16**. VCR Setup Screen

The **VCR Setup** screen lets you enable the following options:

- **VCR Record Sour**ce—When set to **Auto**, this option lets the VCR automatically record the current speaker in a point-to-point call. When **Near** is selected, the VCR records the near-site presentation. When **Far** is selected, the far-site is recorded.

- **VCR Audio Out Always On**—When this option is enabled, the system can operate with two VCRs, one for recording and one for play. This also allows the use of the VCR audio out for room audio applications where the near-site and the far-site audio are required with any video input selected.

Note   If you connect the same device to both the VCR input and VCR output, then you may need to disable this feature to prevent an audio feedback loop.

VGA Input Calibration

This screen is only visible if a Visual Concert FX unit is connected to the ViewStation FX or VS4000. To access the **VGA Input Calibration** screen, select **System Info**>**Admin Setup**>**Video/Camera**>**VGA Input**. The **VGA Input Calibration** screen appears:
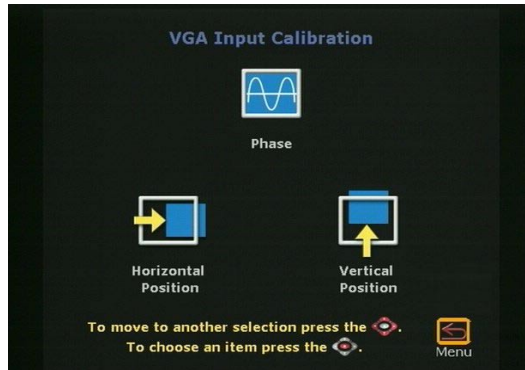
Figure 5-17. VGA Input Calibration Screen

Usually, Visual Concert FX can automatically synchronize with the PC or laptop. However, there are a few instances when it is necessary to calibrate Visual Concert FX to the PC using the tools on this screen.

Security

To access the **Security** screen, select **System Info>Admin Setup>Security**.

Figure 5-18. Security Screen

On this screen, you can set the passwords used to access your ViewStation FX or VS4000 remotely. You are not required to set passwords on your ViewStation FX or VS4000.

A conference password is sometimes required for a multi-point conference that uses a third-party MCU. Additional information is detailed in "Multi-Point Password," on page 61.

Software and Hardware

To access the **Software and Hardware** screen, select **System Info>Admin Setup>Software/Hardware**.

Figure 5-19. Software and Hardware Screen

From this screen, you can access the **Software**, **RS-232**, and **Hardware Information** screens.

Note   If you are in an ISDN (H.320) call, you also have access to the **Send Address Book** and the **Far Site Software Update** screens. For more information on the **Send Address Book** screen, refer to "Adding an Entry to the Address Book," on page 67. For the **Far Site Software Update** screen, refer to "Upgrading Software over ISDN (H.320)," on page 249.

Software

To access the **Software** screen, select **System Info**>**Admin Setup**>**Software/Hardware**>**Software**.

The ViewStation FX or VS4000 serial number, software version, and network interface specifics are displayed on this screen.

RS-232

To access the **RS-232** screen, select **System Info**>**Admin Setup**>**Software/Hardware**>**RS-232**. The following screen is displayed:
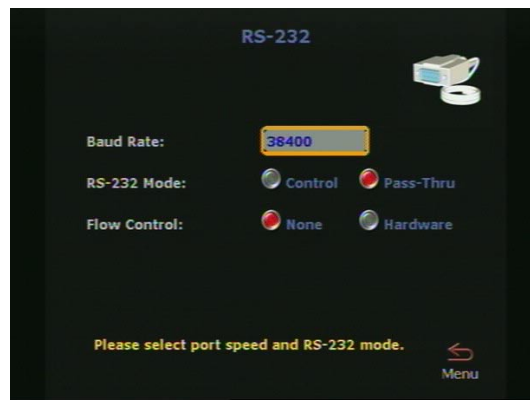

Figure 5-20. RS-232 Screen

On the RS-232 screen, you can configure the **Baud Rate**, the **RS-232 Mode** and the **Flow Control** options:

- **Baud Rates**—The following baud rates are supported by the RS-232 port on ViewStation FX and VS4000:

  - 1200
  - 2400
  - 9600
  - 14400
  - 19200
  - 38400
  - 57600
  - 115200

- **RS-232 Modes**—The RS-232 port on the FX and VS4000 supports two modes: Control and Pass-Thru.

  Control Mode: In Control Mode, a device (for example, a PC) connected to the RS-232 port can control the ViewStation FX or VS4000 using the Remote Control API. The *ViewStation FX and VS4000 Remote Control API* document is available on the Documentation CD.

  Pass-Thru Mode: In Pass-Thru Mode, the operational modes of both endpoints' RS-232 ports depend on the port configuration of each endpoint. Thus, two operational situations might arise:

  - Pass-Thru Mode to Pass-Thru Mode: Both endpoints are set to Pass-Thru Mode.

  - Pass-Thru Mode to Control Mode: The near site is set to Pass-Thru Mode and the far site is set to Control Mode.

  The following information describes operational modes in more detail.

  Pass-Thru Mode to Pass-Thru Mode—Two stations set to Pass-Thru Mode behave essentially as a null-modem between their respective externally connected devices. These two stations can be two ViewStation FXs, two VS4000s, or one ViewStation FX and one VS4000. The RS-232 port is used as a data channel over an H.320 video call. Data received from the RS-232 port on the near-end ViewStation FX or VS4000 station is pushed through the call to the far-end endpoint and then transmitted to the endpoint's RS-232 port. Similarly, data from the far-end endpoint is

transmitted back to the near-end ViewStation FX (through the H.320 call) and then transmitted to the near-end RS-232 port.

The data channel speed is dynamically allocated. The maximum data flow rate is based on the bandwidth of the call.

Because data throughput has priority over video throughput, video bandwidth may be restricted to support data requirements.

Pass-Thru Mode is a proprietary feature that is only supported when both endpoints are either ViewStation FX or VS4000 stations. The RS-232 port only supports data Pass-Thru in H.320 mode (ISDN or V.35). Data Pass-Thru in an H.323 (IP) video call or multi-point call is not supported, as alternative file transfer methods such as ftp or Telnet are widely available.

Note   In Pass-Thru mode, both local and remote stations need to be set to the same data rate.

Pass-Thru Mode to Control Mode—If the near site is set to Pass-Thru Mode, but the far site is set to Control Mode, then the device connected to the near site RS-232 port can be used to control the far site ViewStation FX or VS4000, using the far site's Command Line Interface.

The following table summarizes the port operation based on the RS-232 mode configured by each endpoint.

Near-Side Mode	Far-Side Mode	Resulting Operation
Control	N/A	Near-side CLI (Command Line Interface)
Pass-Thru	Control	The near-side controls the CLI of the far side

Near-Side Mode	Far-Side Mode	Resulting Operation
Pass-Thru	Pass-Thru	The data is passed in full-duplex mode from the near-side RS-232 port to the far-side RS-232 port

- **Flow Control**—The ViewStation FX and VS4000 support hardware flow control. Users should make sure that hardware flow control settings are consistent between the ViewStation FX or VS4000 and the external devices on both sides of the connection.

Hardware Information

To access the **Hardware Information** screen, select **System Info**>**Admin Setup**>**Software/Hardware**>**Hardware**.
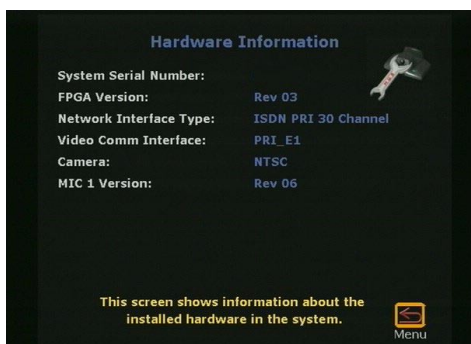

Figure 5-21. Hardware Information Screen

The **Hardware Information** screen contains information about the hardware components that make up your ViewStation FX or VS4000.

If you have Visual Concert FX connected to the ViewStation FX or VS4000, information about **Visual Concert Software**, **VCFX In Resolution**, and **VCFX Out Resolution** is displayed.

6

Troubleshooting

Audio

Symptom	Cause	Solution
Not enough volume during a call.	The volume is set too low on the ViewStation FX or VS4000.	Turn up the ViewStation FX or VS4000 volume using the remote control.
	The volume is set too low on the monitor.	Turn up the volume on your monitor or external amplifier.
	The microphone pod is too far from the people speaking.	Move the microphone pod closer to the meeting participants.
ViewStation FX or VS4000 startup music plays through the built-in ViewStation FX or VS4000 speaker but not through monitor speakers.	The monitor speakers or audio amplifier are not properly connected.	Check audio connections and volume level on your monitor.
Incoming call ring and other sound effects too loud or too soft.	The sound effects volume is not set at desired level.	Adjust the sound effects volume on the Phone/Audio screen. If you do not want to hear sound effects, set the volume to 0.
No audio in a call.	The monitor audio inputs are not connected properly.	Check audio output on the Generate Tone screen under Diagnostics. You should hear a 400 Hz tone emitting from the speaker.
	The ViewStation FX or VS4000 is connected to the wrong audio input on the monitor.	Make sure the ViewStation FX or VS4000 audio output lead(s) are connected to the same input connector(s) that have been selected on the monitor.
	The far site is muted.	Look for the far site **Mute** icon. Ask the far site to unmute its microphone pod.
	Too many network line errors.	Disconnect call and reconnect later.

Audio clipping at far site when using an external wireless microphone.	The audio input is overdriven on the ViewStation FX or VS4000.	Turn down output of wireless microphone. Put the ViewStation FX or VS4000 in local loop and adjust microphone output until you hear audio coming back clear and crisp with no clipping.
Local audio can be heard when speaking in the microphone.	The monitor or audio amplifier is connected to the VCR audio output.	Connect the monitor or audio amplifier to the monitor audio out of the ViewStation FX or VS4000.
An echo is heard at the near site when speaking.	The far site microphone pod is too close to the audio speaker.	At the far site, make sure the microphone pod is placed away from the audio speaker.
	The far site audio volume may be too loud.	Turn down the audio volume at the far site.
Near site or far site cannot hear or see the VCR audio.	The VCR input is not selected.	Turn on the VCR input by selecting the NEAR key twice and selecting the **VCR** icon.

Video

Symptom	Cause	Solution
Picture is blank on the main monitor.	The system goes to "sleep" mode after 3 minutes of inactivity.	Pick up the remote control to wake up the system.
Same picture is seen on the first and second monitor.	Only one monitor is enabled.	Enable the ViewStation FX or VS4000 for two monitors on the **Monitor Setup** screen.
	The monitors are connected to the same output. The monitor has a composite as well as an S-Video output.	Connect Monitor 2 to the Monitor 2 connection on the rear panel of the ViewStation FX or VS4000.
Picture freezes frequently during a call.	The network line transmission errors or IP LAN traffic is too high. Check the error count under the **Diagnostics** screen or try a lower speed IP call.	Check your system using the **Near End Loop** test under the **Diagnostics** screen. If the picture does not freeze, tell the far site to perform the same test. If the picture freezes, there are line errors on your ISDN lines. You can also test this by placing a video call to an ISDN loopback number provided by your service provider.

Picture is slow or jerky.	Only one 64 Kbps channel is connecting in your call.	Check the ISDN number of the far site. Ask the far site to call your site.
	Lots of motion in the picture you are receiving.	A background with less motion provides a better, smoother video picture.
Camera voice tracking does not work properly.	The camera tracking was turned off by near or far site.	Camera tracking is turned off when the near or far site moves your camera. Press the AUTO button on the remote control to restore tracking.
	The far site is speaking.	The camera stops tracking when the far site speaks to prevent the camera from pointing to your monitor speaker.
	The far site is very noisy.	The camera stops tracking when the far site has a loud noise. Try setting the ViewStation FX to track to camera presets.
	The near site is on mute.	The near site camera does not track when the near site is on mute. Toggle mute function with the MUTE button on the remote control.
	Near-site is noisy or too many people talking at once.	Reduce the noise in the room.
Blue screen in the PIP window.	No video input.	Check that there is a video source present on the selected input.
	The camera selection is incorrect	Check camera selection on the Camera screen.
	The VCR input is selected and the VCR is idle or not running. Most VCRs generate a blue screen when the tape is not playing.	Select a different input on the ViewStation FX or VS4000 or play a tape on the VCR.
Near site camera does not pan or tilt.	You are attempting to move a camera that does not have pan/tilt/zoom capabilities.	Make sure you have selected a pan/tilt/zoom camera.

Network and Communications

Symptom	Cause	Solution
Error message occurs when dialing a video call.	If this is an H.320 call, the first line did not connect. It cannot make a call if the first line does not connect.	Check that all network cables are properly connected. Restart the system.
	If this is an H.323 call, the IP Gateway/Gatekeeper is not operating or is not configured correctly.	Contact your network administrator.
ISDN: Line Status icons do not go away so video calls cannot be made.	The ISDN line is not present.	Check the ISDN line connections. The ViewStation FX or VS4000 has an S/T interface and requires an NT-1 to be connected between the the ViewStation FX or VS4000 and your ISDN line, unless the ViewStation FX or VS4000 is connected to a PBX. See below.
	The ISDN number is entered incorrectly.	Check the ISDN numbers with your service provider.
	The SPID numbers are entered incorrectly. Note: The AT&T point-to-point protocol does not require SPIDs.	Select the Clear icon on the Auto Detect SPIDs page, and then select the Start icon to automatically detect the new SPIDs. Make sure your ISDN numbers are entered correctly.
	The ViewStation FX or VS4000 is directly connected to a U interface.	Install an NT-1 between your ISDN line and the ViewStation ISDN connection.
ISDN: The **Line Status** icons do not go away so video calls cannot be made.	The ViewStation is connected to an NT-1 then directly to a PBX. The PBX connection is an S/T interface.	You do not need an NT-1 when connecting to a PBX. Connect the ViewStation FX or VS4000 directly to the PBX S/T connection. You may need to use an ISDN terminating resistor on the ISDN line between your ViewStation and the PBX.

	Your ISDN line is provisioned incorrectly by your service provider.	Check that your ISDN line is provisioned for Voice/Data, Voice/Data.
	The ViewStation FX or VS4000 will auto-detect SPIDs for about 85% of all United States and Canadian switches. The ViewStation was not able to detect your SPIDs.	Check with your ISDN service provider and enter the SPIDs and switch protocol manually. Note: The AT&T point-to-point protocol does not require SPIDs.
	Check that your ISDN line is provisioned for Voice/Data, Voice Data.	You may want to contact your ISDN provider and ask him to switch your line to the NI 1 protocol standard.
ISDN: Error message when dialing a video call.	An ISDN error code is received from the ISDN line.	See the **ISDN Information** appendix.
ISDN: When placing a call, progress icons do not turn green.	The call progress icons indicate that the video call did not complete.	The call progress icons indicate the call state when placing or receiving a video call on each ISDN channel: Blue: call initiated Yellow: call arrived at the far end ISDN switch Orange: remote system answered call Green: video sync OK
System is waiting for an IP address. The **System Info** screen shows "waiting" in IP address field.	The LAN is not working.	Check the connections to the hub. Contact your network administrator.

IMUX

Symptom	Cause	Solution
Cannot dial remote system in BONDING 384 K calls	The call progress circles only show blue or yellow.	Start by calling the far-site at 1x64 or 2x64K. This will verify if the primary number is correct. If these calls complete, try 256K then 384K.
Dialing a remote site in calls above 128 K does not work.	The Call Progress circles do not turn green, or remain blue after the first channel connects.	Go to the call status screen. Highlight each of the circles for each of the channels dialed. The number dialed for each channel will be displayed as you highlight the corresponding circle. Make sure that the far site has entered the number for each of its ISDN lines correctly. The numbers for Line 1 - Line 4 should correspond with connections 1 - 4 on the IMUX.
System will not start.	The system restarts over and over again.	Defective cable between the IMUX and the ViewStation FX or VS4000 . Check that the green lights on each ISDN card are on and that the green light on the top of the IMUX is on (red on older units). The cable from the IMUX to the ViewStation FX or VS4000 is a straight RJ-45 x RJ-45 cable. Bad power supply.
Cannot select 112 or 128 speeds for BONDING calls from the speed selection icon on the **Video Phon**e.	Speeds do not show when selecting the speed icon.	Add line speeds by going to IMUX **Dialing Speeds** screen.

LAN/Intranet

Symptom	Cause	Solution
Cannot access the ViewStation FX or VS4000 from the PC browser.	**DHCP Client** is ON and no DHCP server is available.	Contact your network administrator.
	The LAN cable is connected to the PC port.	Connect the LAN cable to the LAN port on the rear of the ViewStation FX or VS4000.
	Bad LAN cable.	Check the light on the back of the ViewStation FX or VS4000. You should have a steady green light to indicate a connection to the LAN and a flashing orange light to indicate LAN traffic.
	There is a firewall between your PC and your ViewStation FX or VS4000.	Consult your network administrator.
	Your PC is on a different subnet and there is a router between you and your ViewStation FX or VS4000.	Change your PC or ViewStation FX or VS4000 subnet mask and IP address so that they are both on the same LAN or subnet.
System does not allow management via the Web.	Wrong password.	Enter the correct password. Note: The default password is "admin."
	Too many managers are logged into the system.	Only two system managers are allowed at any one time. To log everyone out, restart your ViewStation FX or VS4000.

Presentations

Symptom	Cause	Solution
Web browser does not allow showing PowerPoint presentations from the PC to the ViewStation FX or VS4000.	Wrong version of Web browser.	Presenting PowerPoint slides works with Microsoft Internet Explorer version 3.02 or higher on Windows 95/98/ME and Windows NT/2000 Workstation. Presenting PowerPoint slides also works with Internet Explorer 5.5 on Windows 95/98/ME/2000. You may need to load service packs to your browser. This function does not work with Netscape.
PowerPoint presentation does not export.	Wrong version of Microsoft Office.	Use Microsoft Office 97 or 2000.
	Insufficient disk space.	Slides are converted to JPEG files and are stored in the Windows/Temp directory on your PC. Create more room on your PC.
	There are too many presentations on the ViewStation FX or VS4000. Only eight presentations are allowed.	Delete some presentations from the ViewStation FX or VS4000 and restart the system.
	Presentation is too large.	Separate large presentations into two smaller presentations.
Cannot connect to the PC from the ViewStation FX or VS4000 for presentation. The PC name is there but the PC presentation cannot be accessed when the slide button is pressed.	Incorrect password.	Enter the correct password that was entered on the PC.
	Firewall between the ViewStation FX or VS4000 and the PC.	Consult your IT manager.
	Too many presenters. The ViewStation FX or VS4000 allows a maximum of eight presenters or PCs to be logged on at one time.	Have extra presenters disconnect.
Snapshots and presentations cannot be viewed, though the PC has access to the main Web page of the ViewStation FX or VS4000.	Too many viewers logged in. The ViewStation FX or VS4000 supports up to 30 viewers via the Web browser in a call.	Have extra viewers disconnect.
		Change the slide-viewing password on the **Security** screen to allow only authorized viewers.

Cannot view presentation or snapshots from the Web.	The security level set to "High" on the Web browser.	Lower the security level on the browser to "Medium" or "None."
	Wrong version of Web browser.	For viewing snapshots or slides from the Web, the ViewStation FX or VS4000 supports Internet Explorer 3.02 or higher. The ViewStation FX or VS4000 supports Netscape 4.0 or higher.
	Incorrect viewing password.	To check the slide and snapshot viewing password and other information about your presentation, press the INFO button on the remote control during a presentation. The viewing password may be changed on the **Security** setup screen.

Remote Control

Symptom	Cause	Solution
System does not respond to the hand-held remote control.	No batteries in the remote control.	The green light at the front of the ViewStation FX or VS4000 should blink with each button pressed on the remote. control.
	Batteries installed incorrectly.	Insert batteries with correct +/- position.
Low battery icon on the screen.	Low battery in the remote control.	Replace the batteries in the remote control with 3 AAA batteries.

General Problems

Symptom	Cause	Solution
Slow blinking green light appears on the front of the ViewStation FX or VS4000.	The system is sleeping.	System is in power save sleep mode. This is normal. The system wakes up on any action from the remote control or on an incoming call.
Amber light appears on the front of the ViewStation FX or VS4000.	The system is in a call.	This is normal.

Green light appears on the front on the ViewStation FX or VS4000.	The system is not in a call.	This is normal.
Cannot enter the **Admin Setup** menus.	System is password protected. Password has been forgotten.	Go to the **Diagnostics** screen and perform a system reset. This erases all your system settings except for your Address Book. You may then enter a new password in the **Security** screen.
System starts in the Software Update screen.	System software is corrupt or not loaded properly.	Load system software on the ViewStation FX or VS4000 from your PC.

A
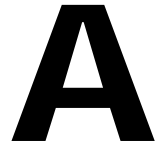
Network Address Translation

General Information

Network Address Translation (NAT) lets home office or small network environments use internal IP addresses for the devices within the network, while using one external IP address to communicate with the outside world (Wide Area Network).

Note Many Small Office Home Office (SOHO) routers provide NAT services, but are not fully H.323 compliant.

The ViewStation FX and VS4000 provide this functionality to assist home office and small network users whose routers support NAT, but are not fully H.323 compliant.

This solution is provided to let the user make calls outside the internal network. At this time, it is not possible to make videoconferencing calls within the internal network when using this solution. To make videoconferencing calls within the network when using this solution, simply de-select the **System is behind a NAT** option and make the call. Re-select the **System is behind a NAT** option to re-activate this feature and make external calls.

Configuration

Before you Start Configuring NAT

1. Determine your NAT's external (WAN) IP address. This is the address assigned to your NAT's external interface (connected to the Internet).
2. Determine the IP address of your ViewStation FX or VS4000. This can be found in the **System Information** screen.

Setting up NAT

1. Go to **Quality of Service and Firewalls** screen (**System Info>Admin Setup>LAN/H.323>H.323>QOS**).

2. Select **Use Fixed Ports**.

3. Select **System is behind a NAT**.

4. Enter the NAT's external IP address into the **NAT outside (WAN) address** field.

    Write down the Fixed TCP and UDP port numbers displayed on this screen. These numbers are the following default numbers:

    TCP: 3230 to 3231

    UDP: 3230 to 3235

    Note   For information on port assignments in multi-point calls, refer to "Multi-Point Calls and Firewall Information," on page 59.

5. In your NAT, reset the fixed ports from step 4 to be permanently open, and redirect them to the IP address of your ViewStation FX or VS4000.

6. To accept incoming calls, open and redirect port 1720 to the IP address of your ViewStation FX or VS4000.

B

Video and Audio Input and Output Levels

Video Levels

This information applies to all Polycom videoconferencing products.

Video Output Levels

Composite and S-video outputs:

- 75 ohm output typical
- NTSC or PAL video standard waveform
- 1.0 Vpp typical per NTSC/PAL standard
- All video outputs are DC coupled

Video Input Levels

Composite and S-video inputs:

- 75 ohm input termination
- NTSC or PAL video standard waveform
- 1.0 Vpp typical per NTSC/PAL standard expected input
- All video outputs are DC coupled

Audio Output

Audio Output Levels

RCA audio output connectors:

- 800 ohm maximum output impedance
- 1.0 Vpp full scale output typical
- All audio outputs are AC coupled

Audio Input Levels

RCA audio input connectors:

- 10 K ohm minimum input impedance
- 1.0 Vpp full scale input expected
- All audio inputs are AC coupled

C

V.35 Technical Information

Serial Interface Control Signals

The ViewStation FX and the VS4000 are designed to be compatible with tested network equipment without any modification from the user. If your network equipment varies from conventional V.35 video implementations, you can adjust the operation of the signals.

If you need to customize your V.35 interface, use the following technical information in addition to the information provided by your network equipment vendor.

The following table describes the configuration of each signal.

Signal (Cable Pin)	Direction	Description	Configuration Option
ST (TC/TT)	OUT	Send Timing (clock)	Normal: falling edge sends data Inverted: rising edge sends data
RT (RC)	IN	Receive Timing (clock)	Normal: rising edge receives data Inverted: falling edge receives data
RTS (RTS)	OUT	Request To Send	Normal: high voltage is logic 1 Inverted: low voltage is logic 1
DCD (DCD)	IN	Data Carrier Detect	Normal: high voltage is logic 1 Inverted: low voltage is logic 1 Filter: allow DCD to drop for 60 seconds before changing call state
CTS (CTS)	IN	Clear To Send	Normal: high voltage is logic 1 Inverted: low voltage is logic 1

DTR (DTR)	OUT	Data Terminal Ready	Normal: high voltage is logic 1 Inverted: low voltage is logic 1 On: constant high voltage Note: if set to ON, inverted is not an option.
DSR (DSR)	IN	Data Set Ready	Normal: high voltage is logic 1 Inverted: low voltage is logic 1 Answer: Use DSR as a Ring-In indicate

State Machine

The V.35 State Machine describes how the V.35 interface signals handshake with the network interface equipment during call establishment.

Dial Out State Machine

State	ViewStation or VS4000 Signals	Network Equipment Signals
1	Initial State: DTR = 0 <see note 3> RTS = 0 <see note 2> CRQ = 0 USER INITIATES CALL	Initial State: RI = 0 DLO = 0 ACR = 0 DSR = 0
2	DTR = 1 <see note 3>	
3	Wait 10 ms	
4	CRQ = 1	
5		PND = 1
6	Set Digit (NB1,NB2,NB3,NB4)	
7	DPR = 1	
8		PND = 0
9	DPR = 0	
10	If not last digit go to state 4 else continue	
11		Call connects on network

12		DSR = 1 AND/OR DCD = 1 (AND/OR DSR = 1 <see note 1)
13	RTS = 1 <see note 2>	
14	DATA FLOW STARTS	DATA FLOW STARTS
	User Hang-up	Far end hang-up
15	RTS = 0 <see note 2> DTR = 0 <see note 3> CRQ = 0 All signals goes low if Far End or User hang up is detected	DSR = 1 to 0, OR DCD = 1 to 0 A falling edge on DSR or DCD are interpreted by theFX or VS4000 as a hang-up.
16	IDLE DTR = 0 <see note 3> RTS = 0 <see note 2> CRQ = 0	IDLE RI = 0 DLO = 0 ACR = 0 DSR = 0

Note 1: DSR is used as a ring-in indicate if DSR is set to ANSWER in the **V.35 Advanced Setup** screen.

Note 2: RTS does not act as shown but acts as a resync-pulse if Security/Crypto-Resync is set to ON.

Note 3: DTR does not act as shown but remains at a high voltage if DTR is set to ON in the **V.35 Advanced Setup** screen.

In-bound Call State Machine

State	ViewStation FX or VS4000 Signals	Network Equipment Signals
1	Initial State: DTR = 0 <see note 3> RTS = 0 <see note 2> CRQ = 0	Initial State: RI = 0 DLO = 0 ACR = 0 DSR = 0
		REMOTE USER INITIATES CALL
2		RI= 0 to 1, or DCD= 0 to 1, or DSR= 0 to 1 <see note 1>
3	Notify user of ring-in (see note 4)	
4	System accepts call	

5	DTR = 1	
6	RTS = 1 <see note 2>	
7	Wait for DSR high	
8		DSR = 1 AND/OR DCD = 1 (AND/OR DSR = 1 <see note 1>)
9	Goto connected state	
10	DATA FLOW STARTS	DATA FLOW STARTS
11	User Hang-up	Far End Hang-up
12	RTS = 0 <see note 2> DTR = 0 <see note 3> CRQ = 0 All signals go low if Far End or User hang up is detected.	DSR= 1 to 0, OR DCD= 1 to 0 OR CTS= 1 to 0 A falling edge on DSR or DCD or CTS is interpreted by the FX/VS4000 as a hang-up.
13	IDLE DTR = 0 <see note 3> RTS = 0 <see note 2> CRQ = 0	IDLE RI = 0 DLO = 0 ACR = 0 DSR = 0

Note 1: DSR is used as a ring-in indicate if DSR is set to ANSWER in the **V.35 Advanced Setup** screen.

Note 2: RTS does not act as shown but acts as a resync-pulse if Security/Crypto-Resync is set to ON.

Note 3: DTR does not act as shown but remains at a high voltage if DTR is set to ON in the **V.35 Advanced Setup** screen.

Note 4: If RS-366 Dialing is not enabled, auto answer must be enabled. If auto answer is not enabled, ring-in will be ignored when in non-dialed mode.

Note 5: If DCD filter is set to ON in the **V.35 Advanced Setup** screen, the system will not react to a low DCD until DCD has been low for 60 seconds.

Non-dialed User-Initiated Call State Machine

State	ViewStation FX or VS4000 Signals	Network Equipment Signals
1	Initial State: DTR = 0 <see note 3> RTS = 0 <nsee ote 2> CRQ = 0	Initial State: RI = 0 DLO = 0 ACR = 0 DSR = 0
	USER INITIATES CALL	
2	DTR = 1 <see note 3>	
3	RTS = 1 <see note 2>	
4		DCD = 0 to 1
5	DATA FLOW STARTS	DATA FLOW STARTS
	User Hang-up	Far end hang-up
6	RTS = 0 <see note 2> DTR = 0 <see note 3> CRQ = 0 All signals go low if far end or User hang up is detected	DSR= 1 to 0, OR DCD= 1 to 0 A falling edge on DSR or DCD is interpreted by the FX/ VS4000 as a hang-up. DCD=<see note 4>
7	IDLE DTR = 0 <see note 3> RTS = 0 <see note 2> CRQ = 0	IDLE RI = 0 DLO = 0 ACR = 0 DSR = 0

Note 1: DSR is not used as a ring-in indicate if DSR is set to ANSWER in the **V.35 Advanced Setup** screen.

Note 2: RTS does not act as shown but acts as a resync-pulse if Security/Crypto-Resync is set to ON.

Note 3: DTR does not act as shown but remains at a high voltage if DTR is set to ON in the **V.35 Advanced Setup** screen.

Note 4: If DCD filter is set to ON in the **V.35 Advanced Setup** screen, the system does not react to a low DCD until DCD has been low for 60 seconds.

Non-dialed Network-Initiated Call State Machine

State	ViewStation FX or VS4000 Signals	Network Equipment Signals
1	Initial State: DTR = 0 <see note 3> RTS = 0 <see note 2> CRQ = 0	Initial State: RI = 0 DLO = 0 ACR = 0 DSR = 0
		USER INITIATES CALL
2		DCD = 0 to 1
3	DTR = 1<see note 3>	
4	RTS = 1<see note 2>	
5	DATA FLOW STARTS	DATA FLOW STARTS
	User hang-up	Far end hang-up
6	RTS = 0 <see note 2> DTR = 0 <see note 3> CRQ = 0 All signals go low if far end or User hang up is detected	DSR= 1 to 0, or DCD= 1 to 0 A falling edge on DSR or DCD is interpreted by the FX/VS4000 as a hang-up. DCD= <see note 4>
7	IDLE DTR = 0 <see note 3> RTS = 0 <see note 2> CRQ = 0	IDLE RI = 0 DLO = 0 ACR = 0 DSR = 0

Note 1: DSR is used as a ring-in indicate if DSR is set to ANSWER in the **V.35 Advanced Setup** screen.

Note 2: RTS does not act as shown but acts as a resync-pulse if Security/Crypto-Resync is set to ON.

Note 3: DTR does not act as shown but remains at a high voltage is DTR is set to ON in the **V.35 Advanced Setup** screen.

Note 4: If DCD filter is set to ON in the **V.35 Advanced Setup** screen, the system does not react to a low DCD until DCD has been low for 60 seconds.

Crypto Resync

If a cryptographic encoder/decoder is connected between the ViewStation FX or the VS4000 and the network, it may require a resynchronization signal from the ViewStation FX or VS4000. This is a signal indicating that the ViewStation FX or the VS4000 has lost video synchronization due to a network problem and requires that the cryptographic encoder/decoder resync with the equipment at the other end of the connection.

To enable this feature, select **System Info**>**Admin Setup**>**Security**. When you select the **Crypto Resync** option, the **Crypto Resync Pulse** screen appears.

On this screen you can enable crypto resync, set the time between pulses (in seconds), and set the pulse width (in milliseconds).

If the ViewStation FX or VS4000 is in a call, and it loses H.320 synchronization, it continuously sends the resynchronization pulses at the specified rate with the specified pulse width until H.320 regains synchronization.

The resync pulse is output on the RTS signal. If this feature is enabled, the RTS signal no longer functions as the Ready-To-Send signal.

Most installations that use encryption equipment require a custom cable. The cable should be designed to route the RTS signal from the ViewStation FX or the VS4000 to the appropriate resync input on the encryption equipment. The encryption equipment can get its RTS input from the ViewStation FX's or VS4000's DTR output or by wiring this input to an always-high tie-off. In this non-dialed mode, the DTR output and RTS output act exactly the same. Refer to "State Machine," on page 208 in this appendix for more information on these signals.

LEDs

LED Activity on the V.35 Network Interface Module

To check your interface module connection, look at the LEDs next to your DCE cable port.

P-LINK Side Connection to the ViewStation FX or VS4000

The LEDs on the front of the interface module indicate the connection status to the ViewStation FX or VS4000 (Figure 1-1).

When you power on the ViewStation FX or VS4000, the following light sequence occurs:

1. Both LEDs flash once to indicate that they are working properly.
2. The bottom amber LED glows solid to indicate that the ViewStation FX or VS4000 is communicating with the network interface module.
3. The top green LED glows solid to indicate that the ViewStation FX or VS4000 is communicating with the network.

NETWORK Side Connecting to the V.35 DCE

Look at the LEDs next to your DCE cable ports to check your network interface module connection (Figure 1-2).

The top green LED corresponds to port status, and the bottom amber LED corresponds to DCE clock status:

Solid amber LED	Indicates that a port is properly connected to an active DCE and is receiving a network clock.
Solid green LED	The ViewStation FX or VS4000 is in an active call.
Green LED off	The ViewStation FX or VS4000 is not in a call.

V.35 Cables

This section provides cable drawings and pinouts for the three cables that you can use with the V.35 network interface module.

Note   These cables are common to both the ViewStation FX and the VS4000.

HD-44M to RS-366/V.35 "Y" Cable Diagram

DB25 Male

V.35 Male

J2

J3

High Density
DB44 Male

J1

5' +/- 1"

1' +/- 1"
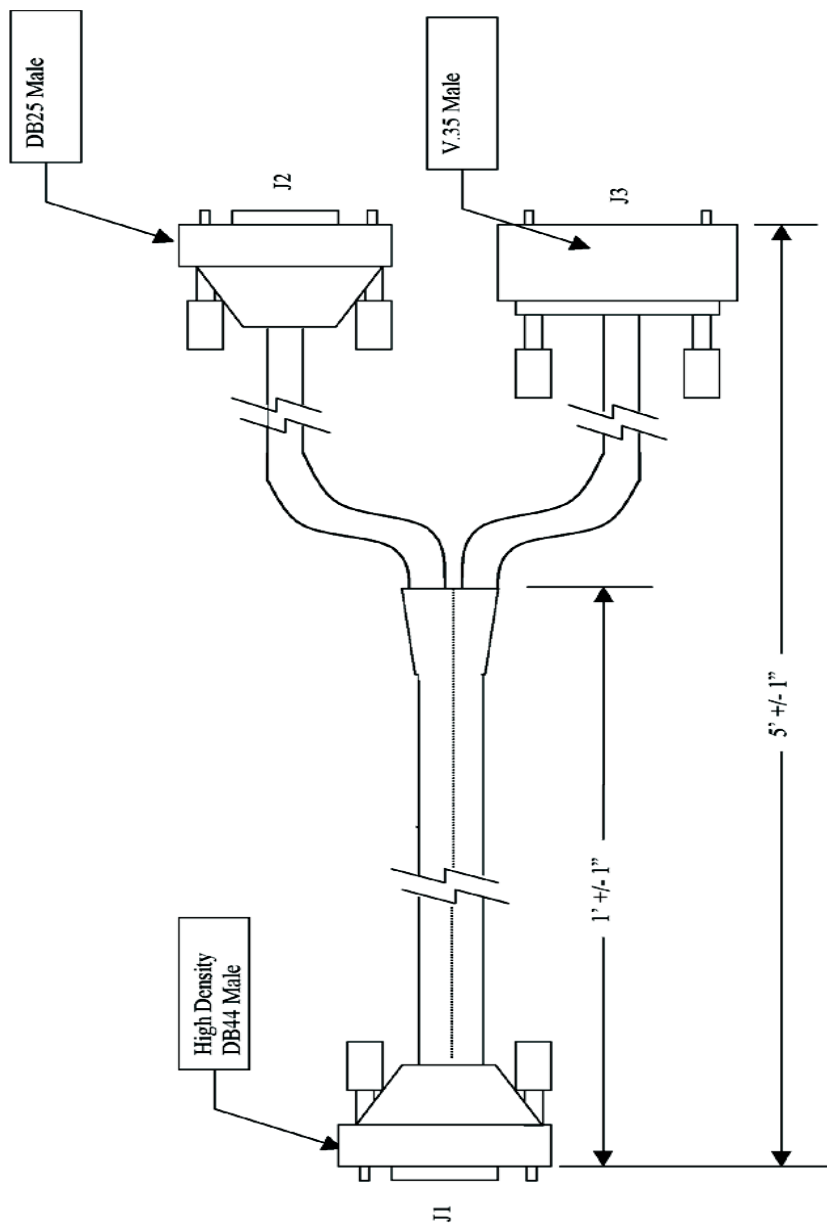
Pinout to the HD-44M to RS-366/V.35 "Y" Cable Diagram
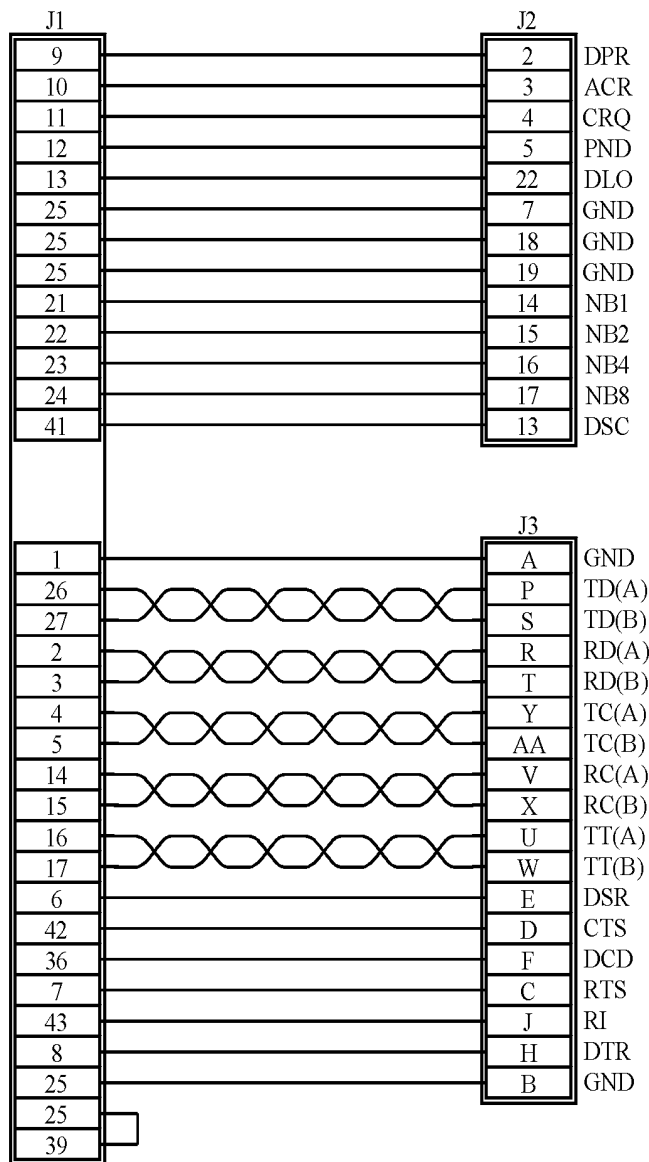
J1		J2	
9		2	DPR
10		3	ACR
11		4	CRQ
12		5	PND
13		22	DLO
25		7	GND
25		18	GND
25		19	GND
21		14	NB1
22		15	NB2
23		16	NB4
24		17	NB8
41		13	DSC

Connections
J1-9   - J2-2
J1-10 - J2-3
J1-11 - J2-4
J1-12 - J2-5
J1-13 - J2-22
J1-25 - J2-7
J1-25 - J2-18
J1-25 - J2-19
J1-21 - J2-14
J1-22 - J2-15
J1-23 - J2-16
J1-24 - J2-17
J1-41 - J2-13

J1		J3	
1		A	GND
26		P	TD(A)
27		S	TD(B)
2		R	RD(A)
3		T	RD(B)
4		Y	TC(A)
5		AA	TC(B)
14		V	RC(A)
15		X	RC(B)
16		U	TT(A)
17		W	TT(B)
6		E	DSR
42		D	CTS
36		F	DCD
7		C	RTS
43		J	RI
8		H	DTR
25		B	GND
25			
39			

Connections
J1-1   - J3-A
J1-26   - J3-P
J1-27   - J3-S
J1-2   - J3-R
J1-3   - J3-T
J1-4   - J3-Y
J1-5   - J3-AA
J1-14   - J3-V
J1-15   - J3-X
J1-16   - J3-U
J1-17   - J3-W
J1-6   - J3-E
J1-42   - J3-D
J1-36   - J3-F
J1-7   - J3-C
J1-43   - J3-J
J1-8   - J3-H
J1-25   - J3-B
J1-25   - J1-39

HD-44M to RS-449/S-422 "Y" Cable Diagram
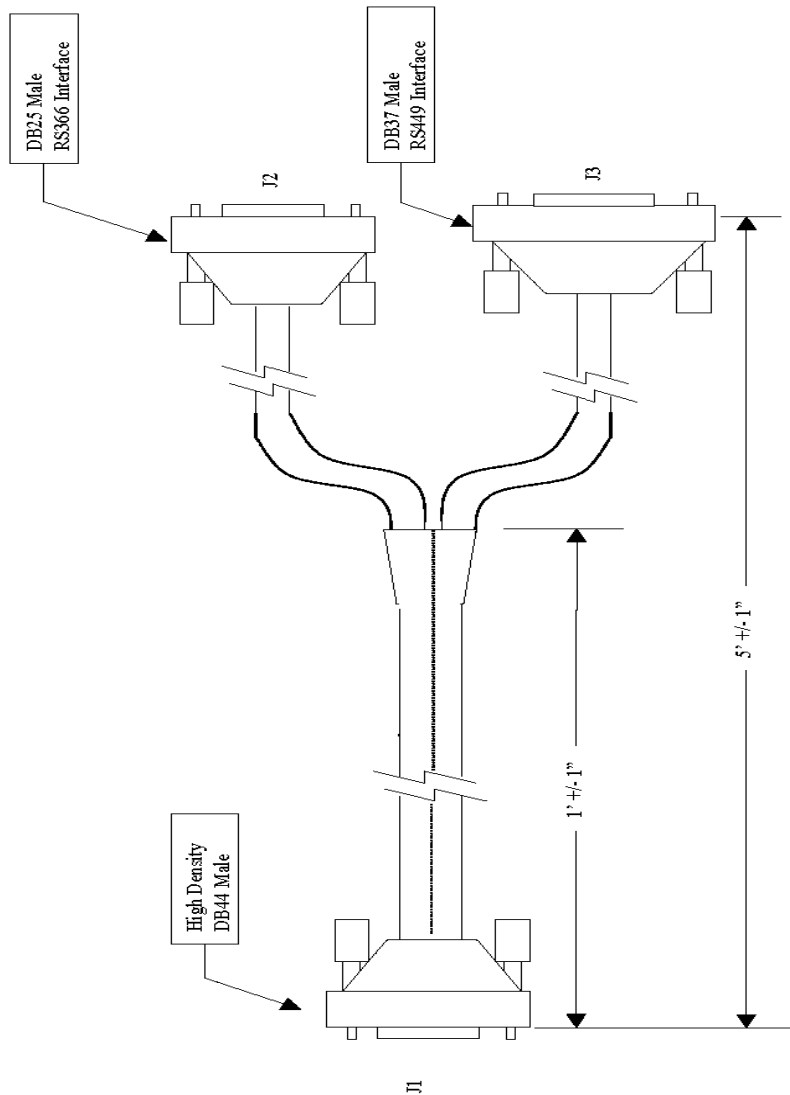
Pinout to the HD-44M to RS-449/S-422 "Y" Cable Diagram

J1		J2	
9		2	DPR
10		3	ACR
11		4	CRQ
12		5	PND
13		22	DLO
25		7	GND
25		18	GND
25		19	GND
21		14	NB1
22		15	NB2
23		16	NB4
24		17	NB8
41		13	DSC

Connections

J1-9	-	J2-2
J1-10	-	J2-3
J1-11	-	J2-4
J1-12	-	J2-5
J1-13	-	J2-22
J1-25	-	J2-7
J1-25	-	J2-18
J1-25	-	J2-19
J1-21	-	J2-14
J1-22	-	J2-15
J1-23	-	J2-16
J1-24	-	J2-17
J1-41	-	J2-13

J1		J3	
1		19	SGND
26		4	SD(A)
27		22	SD(B)
2		6	RD(A)
3		24	RD(B)
4		5	ST(A)
5		23	ST(B)
14		8	RT(A)
15		26	RT(B)
31		11	DM(A)-DSR
32		29	DM(B)-DSR
29		9	CTS(A)
30		27	CTS(B)
33		13	RR(A)-DCD
34		31	RR(B)-DCD
18		7	RTS(A)
19		25	RTS(B)
37		12	DTR(A)
38		30	DTR(B)
16		17	TT(A)
17		35	TT(B)
43		15	IC-RI
20		20	RECGND
35		37	SNDGND
25			
40			

Connections

J1-1	-	J3-19
J1-26	-	J3-4
J1-27	-	J3-22
J1-2	-	J3-6
J1-3	-	J3-24
J1-4	-	J3-5
J1-5	-	J3-23
J1-14	-	J3-8
J1-15	-	J3-26
J1-31	-	J3-11
J1-32	-	J3-29
J1-29	-	J3-9
J1-30	-	J3-27
J1-33	-	J3-13
J1-34	-	J3-31
J1-18	-	J3-7
J1-19	-	J3-25
J1-37	-	J3-12
J1-38	-	J3-30
J1-16	-	J3-17
J1-17	-	J3-35
J1-43	-	J3-15
J1-20	-	J3-20
J1-35	-	J3-37
J1-25	-	J1-40

Ascend HD-44M to HD-44M Cable Diagram

Pinout for the Ascend HD-44M to HD-44M Cable Diagram

D
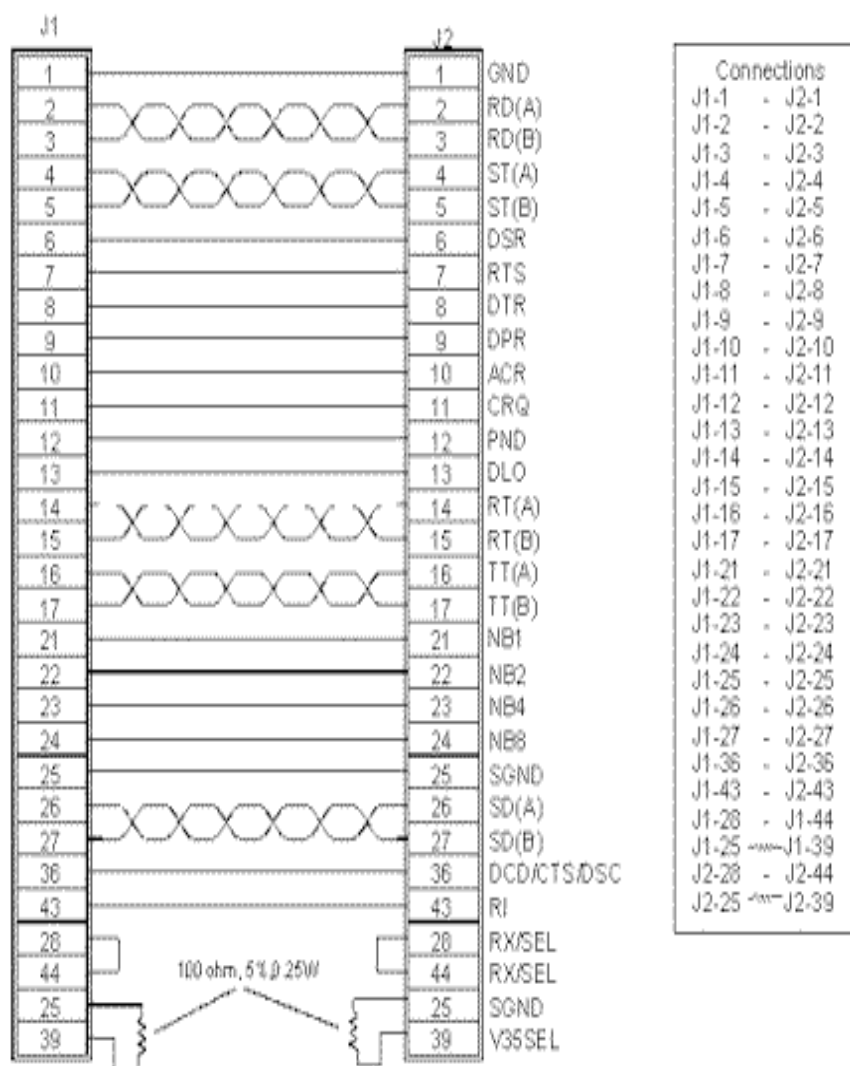
PRI Technical Information

Overview

The PRI interface is just one of several network interfaces you can use with the ViewStation FX or VS4000. To use the PRI interface, you must connect a PRI network interface module, which is an external unit, to the ViewStation FX or VS4000.

For more information about connecting the PRI network interface module, refer to "PRI Network Interface Setup," on page 11.

PRI Network Interface Modules

There are two kinds of PRI network interface modules:

- T1—Used in North America, Japan, Taiwan, and Hong Kong.
- E1—Used in Europe and most of the other countries that do not use the T1.

The T1 interface network module supports twenty-three 64 Kbps B channels and one D channel (channel 24) for signaling. The E1 network interface module supports thirty 64 Kbps B channels and one D channel (channel 16). Therefore, the aggregate data capacity is:

- T1—1472 Mbps
- E1—1920 Mbps

The T1 and E1 also have different methods of signaling and framing.

P-LINK Cable

You use a special cable with light blue keyed RJ-45 connectors at either end to connect the network interface module to the ViewStation FX or VS4000.

The cable, which is called the peripheral link (P-LINK) cable, is designed to only connect to peripheral devices that are unique to Polycom products, such as the PRI network interface module or the V.35 network interface module.

It is provided with the PRI network interface module. The P-LINK cable connector is keyed and does not fit into a standard RJ-45 network port.

NETWORK Side of the PRI Network Interface Module

One side of the PRI network interface module has three vertical LEDs and a standard RJ-45 port labeled NETWORK.

The RJ-45 port connects to a standard CAT5 cable from the upstream PBX or telephone company switch. This side of the PRI network interface module is called the NETWORK side. The cable that connects to the network side is called the NETWORK cable.
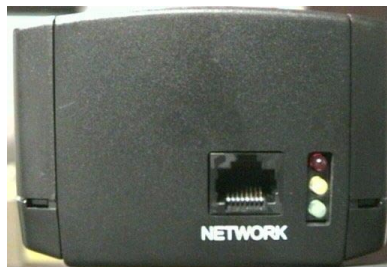
Figure D-1. PRI Network Interface Module—NETWORK side

P-LINK Side of the PRI Network Interface Module

The other side of the PRI network interface module is called the P-LINK side. This side has:

- A circular slot for a DC power supply
- Two keyed RJ-45 connectors
- Two vertical LEDs

Figure D-2. PRI Network Interface Module—P-LINK side

Network Cable and Network Connection

The PRI network interface module is designed to be customer premise equipment (CPE). This means the PRI network interface module does not generate a clock signal to the network. Instead, the module derives the clock from the *upstream* switch or from the PBX to which it is connected. This is sometimes referred to as *slave mode*.

Note 1 The term *upstream* refers to network devices that are closer to the telephone service provider. The term *downstream* refers to network devices that are closer to the Polycom video communications unit. For example, the PRI network interface module might be downstream from your PBX, which, in turn, is downstream from a telephone company switch. Your PBX is upstream from the PRI network interface module. The ViewStation FX or VS4000 is always downstream from the PRI network interface module.

Note 2 The generation of a clock signal is not an item you can configure. If the upstream network device does not provide a clock, the PRI network interface module does not work.

The network cable is a standard CAT5 cable with the following pinout, for both T1 and E1:

- 1 and 2 - *Receive* data from the upstream device into the PRI network interface module
- 4 and 5 - *Transmit* data from the PRI network interface module to the upstream device

A PBX might require a crossover cable to operate properly.

In some areas, an E1 network connection is provided via a 75-ohm coaxial cable. The PRI network interface module does not directly support this. However, you can easily obtain inexpensive passive adapter devices from various vendors. On the **PRI Information** screen for E1, the **Line Termination** field has a value of 120 ohms. You cannot change this value.

Channel Service Unit

In North America only, the network cable for the T1 PRI network interface module can be connected to an external device called a Channel Service Unit (CSU). The CSU ensures that the PRI is isolated from the actual network. The CSU regenerates the signals from the PRI network interface module on the actual network cable. If the PRI network interface module loses power or is disconnected, the CSU ensures that a signal continues to be transmitted back to the network. This prevents the line from being deactivated. A CSU is normally only needed when the network cable for the T1 PRI network interface module is connected directly to a telephone company switch, not when the network cable is connected to a PBX.

External CSU

If you use an external CSU, you must specify the following information on the **PRI Setup** screen (**System Info**>**Admin Setup**>**Video Network**>**IMUX**>**PRI Network**>**PRI Setup**):

• In the **CSU** field, select **External**.

• In the **Line Buildout** field, select the length of the cable that connects the PRI network interface module to the CSU.

You can also configure the T1 PRI network interface module to act as a CSU. To do this, the external power supply must be plugged in.

Internal CSU

To use the T1 PRI network interface module as an internal CSU, you must specify the following information on the **PRI Setup** screen (**System Info**>**Admin Setup**>**Video Network**>**IMUX**>**PRI Network**>**PRI Setup**):

• In the **CSU** field, select **Internal**.

• In the **Line Buildout** field, select an appropriate dB setting. The telephone company usually determines the dB value by measuring the characteristics of the line. If an external CSU was previously used, use the setting selected for that CSU. Otherwise, start with 0.

External Power Supply

The PRI network interface module gets its power from the ViewStation FX or VS4000 over the P-LINK cable. The FX or VS4000 must be powered on and booted in order to provide power to the module. If the FX or VS4000 displays a Softupdate screen, the FX or VS4000 is not supplying power over the P-LINK cable.

You can connect an external DC power supply to the PRI network interface module via a connector on the P-LINK side. The external power supply ensures that the PRI network interface module is powered even if the P-LINK cable is disconnected, or the FX or VS4000 is powered off or in boot mode.

For any T1 or E1 PRI network interface modules that are directly connected to a telephone company switch, it is strongly recommended that you keep the external DC power supply plugged in at all times. Another recommendation is that you plug the DC power supply into the building's electrical power grid via a UPS. This can prevent the network line from losing signal and going out of sync with telephone company switch because of a power outage, FX or VS4000 failure, or a disconnect of the P-LINK cable.

If you use the internal CSU functionality of the T1 PRI network interface module, you must connect the external power supply.

LEDs

Update Sequence

P-LINK Side Connecting to the ViewStation FX or VS4000

The following LED sequence can be observed while the PRI network module is being updated.

Caution   During the update, do not reboot the system or detach any cable.

1. The amber LED stays lit for approximately 90 seconds or more, while the data is being transferred to the PRI network module.

2. The amber and green LEDs come on and stay on for a few seconds, while the module is being updated.

3. Then, the amber LED goes off and the green LED goes on. The PRI is booted and now running.

Network Side Connecting to the ISDN PRI Network

The following LED activity can be observed once the PRI update is completed:

T1	E1
1. The red LED is on briefly.	1. The red LED is on briefly.
2. The yellow LED goes on briefly.	2. A solid green LED means that the system is synchronized with the network and fully operational.
3. The green LED goes on. A solid green LED means that the system is synchronized with the network and fully operational.	
Note: If the green LED light does not light, check the PRI network connection.	**Note**: If the green LED light does not light, check the PRI network connection.

LED Activity

NETWORK Side LEDs

The NETWORK side of the PRI network interface module has three vertical LEDs. From the top, the LEDs are red, yellow, and green.

LED activity for a PRI T1 and a PRI E1 network interfaces is described in the following tables:

PRI T1 Network Interface Module

The various LEDs indicate the following:

PRI T1 Network Interface Module	
Blinking red LED	Either the network cable is not connected, or the upstream switch or PBX port is deactivated, that is, there is no energy on the line.
Solid red LED	The network cable is connected and has energy on the line. However, there is no clock sync.
Solid yellow LED	The PRI network interface module is receiving clock and frame sync and waiting for a timer to elapse. If the clock and frame sync is lost before the timer elapses, the yellow LED goes out and a solid red LED is displayed.
Solid green LED	The ViewStation FX or VS4000 is fully synchronized with the network and is ready to use.

PRI E1 Network Interface Module

The various LEDs indicate the following:

PRI E1 Network Interface Module	
Blinking red LED	Either the network cable is not connected, or the upstream switch or PBX port is deactivated, that is, there is no energy on the line.
Solid red LED	The network cable is connected and has energy on the line. However, there is no clock sync.

PRI E1 Network Interface Module	
Solid yellow LED	The PRI network interface module is receiving clock and frame sync, and receiving Remote Alarm Indication (RAI) from the network without any Cyclic Redundancy Check (CRC) errors.
Blinking yellow LED	The PRI network interface module is receiving clock and frame sync, and receiving RAI from the network with CRC errors.
Solid red LED and solid yellow LED	The PRI network interface module is receiving clock sync, and receiving AIS Alarm Indication Signal (unframed all-ones).
Solid green LED	The ViewStation FX or VS4000 is fully synchronized with the network and is ready to use.

Peripheral Link (P-LINK) Side LEDs

The P-LINK side of the PRI network interface module has two vertical LEDs: green and amber. The various LEDs indicate the following:

Solid amber LED	The PRI network interface module is in boot mode. If the LED stays lit for more than a minute, new microcode is being uploaded from the ViewStation FX or VS4000 to DRAM.
Solid amber LED and solid green LED	A DRAM upload of new microcode has been completed and is being burned into flash.
Solid green LED	The PRI network interface module is fully booted.

Note   If the PRI network interface module is connected to an external power source, the green LED should come on after several seconds, even if the peripheral link cable is not connected.

PBXs

The following provides information about PBXs.

• Some PBXs require a crossover cable.

• Because the PRI network interface module does not generate a clock signal to the network, the PBX must be capable of providing the clock signal.

• Because the PRI network interface module acts as customer premise equipment (CPE), the PBX must be able to act as the network side for layers 1, 2, and 3.

• A PBX that is configured correctly should accept a numbering type of **Unknown** in calls from the PRI network interface module. The failure of the PBX to do this might indicate a configuration problem. For more information, see "Advanced PRI Configuration," on page 126.

• QSIG signaling, known as *PSS1*, is not supported. However, a PRI network interface module can be connected to a PISN through a gateway using ordinary ETSI DSS1 signaling.

Switch Protocols

The selection of valid switch protocols depends on both the country and PRI network interface module type, which is either T1 or E1.

For E1, NET5/CTR4 is the default. NET5/CTR4 is the standard ETSI protocol derived from ITU Q.931.

For T1, NET5/CTR4 is also provided for certain Asian countries, such as Japan, Hong Kong, and Taiwan.

If more than one switch protocol is supported, contact the telephone service provider to determine which protocol to select.

The PRI network interface module originates and accepts data calls only. The PRI network interface does not work with incoming PRI

voice calls or non-PRI lines of any kind. Special services, such as caller-id blocking and call forwarding, are not supported.

Line Signaling

For E1, the Line Signaling field of the **PRI Information** screen provides two choices:

- CRC4/HDB3: This is the default value. Data is encoded using HDB3 to ensure proper one-density, and CRC4 error checking is enabled on both transmit and receive.

- HDB3: CRC4 error checking is disabled.

For T1, the only choice is ESF/B8ZS. This value actually chooses both a framing format and an encoding method. Legacy frame formats, such as D4, are not supported. In addition, older encoding methods, such as B7ZS, are not supported.

Restrictions

- The PRI network interface module originates and accepts restricted or unrestricted data calls only, and does not work with incoming PRI voice calls, or on non-PRI T1/E1 lines of any kind.

- Special services, such as caller-ID blocking and call forwarding, are not supported.

- H0 and other higher-bandwidth channels are not supported.

- Depending on how your channels are configured in the **PRI Status** screen (see "PRI Status (T1 and E1)," on page 130), the following information may apply:

  Outgoing Call. For an outgoing call, the FX or VS4000 uses the first active and available channel starting with the lowest number from the channel range (1-23 for a PRI T1 and 1-30 for a PRI E1). If an additional channel is needed, the system chooses the next incremental number. For example, if channels 1 through 7 are inactive, but 8 is active and available, then 8 is the first channel that can be used by the ViewStation FX or VS4000 to place an outgoing call. If an additional channel is needed, the system will use the next available active channel in the range (which could be 9, and so on).

Incoming Calls. For incoming calls, the FX or VS4000 may use the highest numbered channel in the range and, if needed, proceed to the next channel number in a decremental order, depending on the type of third-party equipment attached to the system. For example, an incoming call arrives on channel 23, then 22, 21, and so on.

• NFAS, or Non-Facility Associated Signaling, is not supported. This means that signaling is not supported over T1 lines that are part of a group managed by one D-channel, and a backup D-channel is not supported.

• QSIG signaling, known as *PSS1*, is not supported. However, a PRI network interface module can be connected to a PISN through a gateway using ordinary ETSI DSS1 signaling.

PRI Cables

RJ-45 to RJ-45 Clear Cable Diagram

PIN 8

P2

MOLDED STRAIN RELIEF
BOTH ENDS.

CABLE, 8 COND, 24 AWG,
BLACK PVC JACKET
CATEGORY 5, TWISTED PAIR
MINIMUM OF 2 TWISTS PER INCH.

1

SHRINK
TUBING

20 FEET +/- 3"

FERRITE BEAD

1.0" ±1/2"

CONN. RJ-45
(×2)

PIN 8

P1
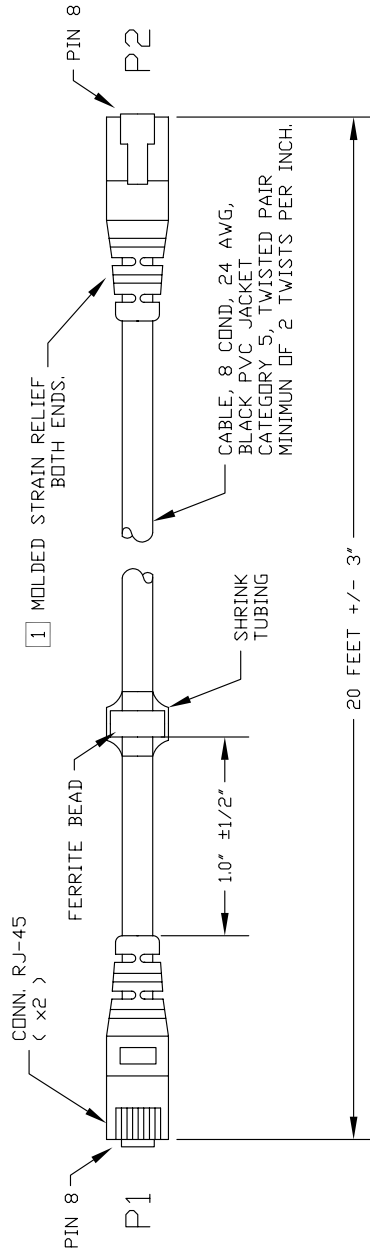
Keyed RJ-45 to Keyed RJ-45 Cable Diagram
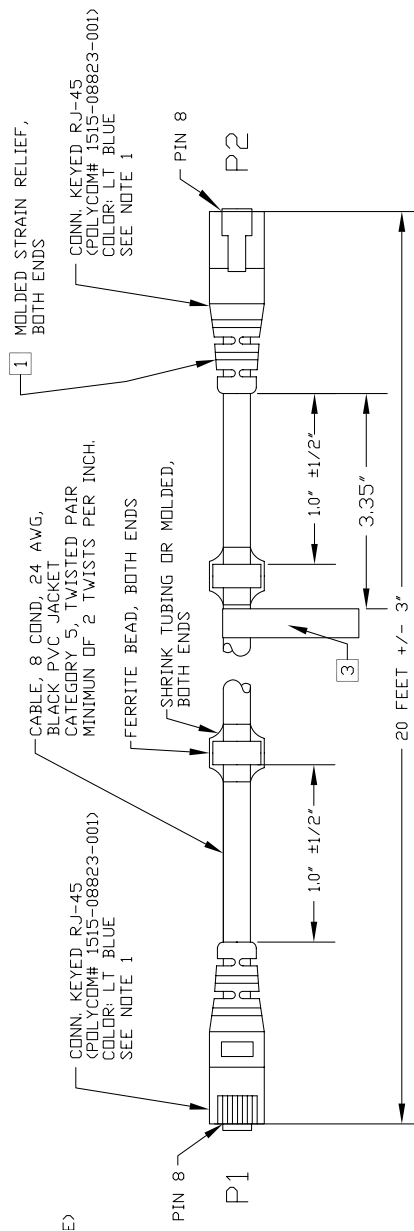
Pinout to the Keyed RJ-45 to Keyed RJ-45 Cable
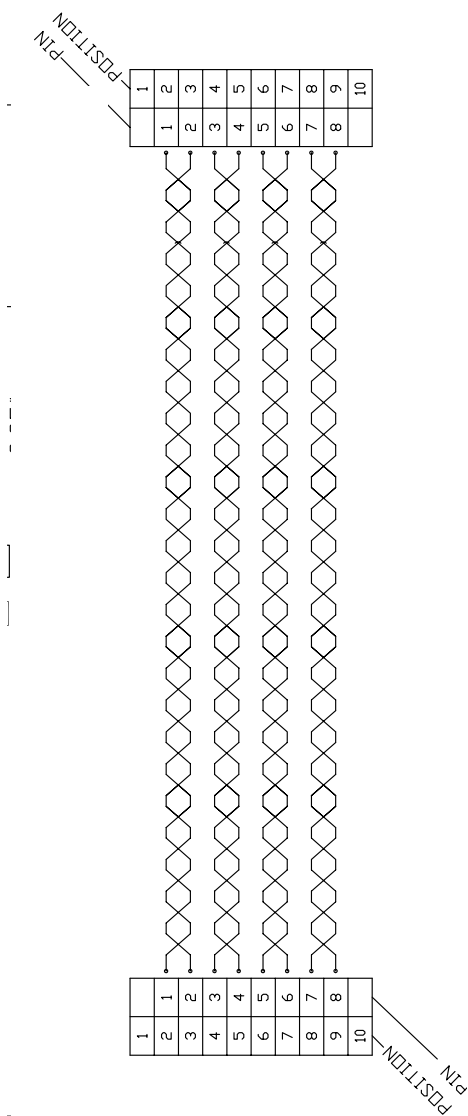
Glossary of Terms

The following defines terms related to PRI T1 and E1.

B7ZS

A method of signal encoding used with T1. This method is no longer widely deployed.

B8ZS

A method of signal encoding used with T1.

CPE

Customer Premise Equipment. Network endpoint equipment that is used at a customer site.

CRC

Cyclic Redundancy Check. An error-detection mechanism.

CRC4

A CRC algorithm used with E1.

CSU

Channel Service Unit. A device that isolates CPE from the network. Used in North America only.

Downstream

Away from the network and towards the Customer Premise Equipment.

D4

A T1 data-framing format, which is no longer widely deployed.

E1

A 2.048 Mbps carrier that supplies 30 data channels at 64 Kbps and one signaling channel.

ESF

Extended Superframe Format. A T1 data-framing format.

HDB3

A method of signal encoding used with E1.

Network cable

A standard CAT5 cable with ordinary RJ-45 connectors, which connects a PRI network interface module to the network.

Network side

The side of a PRI network interface module that connects to an upstream switch or PBX.

PABX

Private Area Branch Exchange (see PBX).

PBX

Private Branch Exchange.

Peripheral Link

P-LINK. Proprietary serial interface for connecting PRI or V.35 modules to aViewStation FX or VS4000.

P-LINK

Peripheral link.

P-LINK cable

A special cable with keyed RJ-45 connectors that connects a PRI network interface module to a ViewStation FX or VS4000.

P-LINK side

The side of a PRI network interface module that connects to an FX or VS4000.

T1

A 1.544 Mbps carrier, which supplies 23 data channels at 64 Kbps and one signaling channel.

Upstream

Towards the network and away from the Customer Premise Equipment.

E

Frame Rate Specification For the ViewStation FX and VS4000

Frame Rate Specification Table

TV MODE	2 Way	3 Way	4 Way
NTSC	30	30	30
PAL	25	25	25

F

ISDN Information

NT-1 Information

This information applies only to ViewStation FX or VS4000 that are using a Quad BRI interface.

If you are not connected to an internal phone system, called a PBX, you need to connect the ISDN cables from your ViewStation FX or VS4000 to the IMUX module to the NT-1 device, which is connected to an ISDN wall jack.

Once everything is connected, the lights on the various devices indicate whether or not they are connected properly. The lights, however, do NOT indicate that the SPIDs, switch type, and ISDN numbers have been correctly entered into the ViewStation FX or VS4000 .

Following are sample NT-1 settings. For more detailed diagnostic information, see the manual that was shipped with your particular NT-1 device.

Note   If you are outside the United States or Canada, your service providers or PTTs generally provide the network termination (NT-1) device.

Sample NT-1 Settings

Adtran NT-1 Ace

On an ADTRAN NT-1 ACE ISDN termination unit, you should see the following status lights when your ISDN lines are properly connected.

Status Lights		
Ready	Error	Power
ON	OFF	ON

The dip switches should be set as follows:

Dip Switches	
Configuration	Termination
SHORT	NONE
LONG	50
	100

Motorola NT-1D

On a Motorola NT1D, you should see the following status lights when your ISDN lines are properly connected.

Status Lights					
SC	ACT	LB	LP	RP	RPR
ON	ON	OFF	ON	OFF	OFF

The dip switches should be set as follows:

Dip Switches			
1	2	3	4
ON	ON	ON	ON

Alpha Telecom UT620F

On an Alpha Telecom (AT1) UT620F, you should see the following status lights when your ISDN lines are properly connected.

Status Lights		
Power	ST&U	Back
ON	OFF	OFF

The dip switches should be set as follows:

Dip Switches			
1	2	3	4
ON	ON	OFF	ON

ISDN Switches

Depending on the type of ISDN lines you are using, your service provider may assign zero, one, or two SPIDs per line.

Switch Type	SPIDs Allocated
AT&T 5ESS Custom	None
AT&T 5ESS NI-1	1 per B-channel
NT DMS-100 NI-1	1 per B-channel
NI-2	1 per device
Siemens EWSD NI-1	1 per B-channel
Siemens EWSD NI-2	1 per device
International (outside United States or Canada)	None

ISDN Errors

The following table describes ISDN standard cause values that are sent from the ISDN switch to the router to indicate ISDN call status. Although the cause values are standardized, each ISDN service provider phrases the cause differently. Therefore, the causes shown in the table might not be the exact messages that appear on your television monitor.

Code	Cause	Definition
1	Unassigned number	The switch received the sent ISDN number in the correct format; however, no destination equipment uses the number.
2	No route to specified transit network	The ISDN exchange can not recognize the intermediate network through which to route the call.
3	No route to destination	The destination address is not serviced by the intermediate network through which the call is routed.
6	Channel unacceptable	The specified channel does not provide sufficient service quality to accept the requested connection.

Code	Cause	Definition
7	Call awarded and delivered	The user is assigned an incoming call that is being connected to an already-established call channel.
16	Normal call clearing	Normal call clearing has occurred.
17	User busy	All B channels are in use; the called system acknowledges the connection request, but is unable to accept the call.
18	No user responding	The destination does not respond to the call so the connection cannot be completed.
19	No answer from user (user alerted)	The destination fails to complete the connection within the prescribed time after responding to the connection request. The problem occurs at the remote end of the connection.
21	Call rejected	The destination rejects the call for an unknown reason, although capable of accepting the call.
22	Number changed	No system has been assigned the ISDN number used to set up the call. (The diagnostic field of the message may return an alternate address assigned to the called equipment.)
26	Non-selected user clearing	The destination rejected the call, although capable of accepting it, because the call was not assigned to the user.
27	Destination out of order	A signaling message can not be delivered because the interface is not functioning correctly, and therefore the destination can not be reached. This condition might be temporary, though of extended duration; for instance, remote equipment might be turned off.
28	Invalid number format	Destination address presented in an unrecognizable format or an incomplete destination address prevented the connection from being established.
29	Facility rejected	The network can not provide facility requested by the user.
30	Response to STATUS ENQUIRY	The prior receipt of a status inquiry message generated the status message.

Code	Cause	Definition
31	Normal, unspecified	A normal has occurred with no standard cause applying. No resulting action is required.
34	No circuit/channel available	The call can not be taken because no appropriate channel is available to establish the connection.
38	Network out of order	The network is not functioning correctly and this condition may persist for an extended period. The call can not reach the destination and an immediate attempt to reconnect will probably fail.
41	Temporary failure	The network is not functioning correctly and an error occurred. The problem will be resolved shortly.
42	Switching equipment congestion	The network switching equipment is temporarily overloaded and the destination can not be reached.
43	Access information discarded	The requested access information can not be provided by the network.
44	Requested circuit/channel not available	An unknown reason prevents the remote equipment from providing the requested channel. This might be a temporary problem.
47	Resource unavailable, unspecified	An unknown reason prevents the remote equipment from providing the requested channel. This might be a temporary problem.
49	Quality of service unavailable	The network can not provide the requested quality of service (as defined by CCITT recommendation X.213). This might be a subscription problem.
50	Requested facility not subscribed	The remote equipment supports the requested supplementary service, but only by subscription.
57	Bearer capability not authorized	The caller has requested a bearer capability that the network can provide, but the user is not authorized to use. This might be a subscription problem.
58	Bearer capability not presently available	The network normally provides the requested bearer capability, but not at the present time. This might be due to a temporary network problem or to a subscription problem.

Code	Cause	Definition
63	Service or option not available, unspecified	An unspecified reason prevents the network or remote equipment from providing the requested service option. This might be a subscription problem.
65	Bearer capability not implemented	The network cannot provide the bearer capability requested by the user.
66	Channel type not implemented	The requested channel type is not supported by the network or the destination equipment.
69	Requested facility not implemented	The supplementary service is not supported by remote equipment.
70	Only restricted digital information bearer is available	The network is unable to provide unrestricted digital information over bearer capability.
79	Service or option not available, unspecified	The network or remote equipment is unable to provided the requested service option for an unspecified reason. This might be a subscription problem.
81	Invalid call reference value	The remote equipment received a call with a call reference that is not currently in use on the user-network interface.
82	Identified channel does not exist	The receiving equipment is requested to use a channel that is not activated on the interface for calls.
83	A suspended call exists but this call identity does not	The network received a call resume request. The call resume request contained a call identify information element indicating that the call identity is in use for a suspended call.
84	Call identity in use	The network received a call resume request that contained a Call Identify information element indicating that it is in use for a suspended call.
85	No call suspended	The network received a call resume request when there was not a suspended call pending. This might be a transient error that will be resolved by successive call retries.

Code	Cause	Definition
86	Call having requested call identity has been cleared	The network received a call resume request. The call resume request contained a call identity information element, which once indicated a suspended call. However, the suspended call was cleared either by timeout or by the remote user.
88	Incompatible destination	Indicates that an attempt was made to connect to non-ISDN equipment. For example, to an analog line.
91	Invalid transit network specified	The ISDN exchange was asked to route the call through an unrecognized intermediate network.
95	Invalid message, unspecified	An invalid message was received, and no standard cause applies. This is usually due to a D-channel error. If this error occurs systematically, report it to your ISDN service provider.
96	Mandatory information element is missing	The receiving equipment received a message that did not include one of the mandatory information elements. This is usually due to a D-channel error. If this error occurs systematically, report it to your ISDN service provider.
97	Message type nonexistent or not implemented	The receiving equipment received an unrecognized message, either because the message type was invalid or because the message type was valid but not supported. Cause 97 is due to either a problem with the remote configuration or a problem with the local D channel.
98	Message incompatible with call state or message type nonexistent	The remote equipment received an invalid message, and no standard cause applies. Cause 98 is usually due to a D-channel error. If this error occurs systematically, report it to your ISDN service provider.
99	Information element nonexistent or not implemented	The remote equipment received a message that includes information elements which were not recognized. This is usually due to a D-channel error. If this error occurs systematically, report it to your ISDN service provider.

Code	Cause	Definition
100	Invalid information element contents	The remote equipment received a message that includes invalid information in the information element. This is usually due to a D-channel error.
101	Message not compatible with call state	The remote equipment received an unexpected message that does not correspond to the current state of the connection. This is usually due to a D-channel error.
102	Recovery on timer expiry	A timer expiry initiated an error-handling (recovery) procedure. This problem is typically temporary.
111	Protocol error, unspecified	An unspecified D-channel error when no other standard cause applies.
127	Interworking, unspecified	An event occurred, but the network does not provide causes for the action that it takes. The precise problem is unknown.
145	ISDN layer 1 and/or 2 link not established	User needs to check cabling, ISDN adapter status and network connections.
146	ISDN layer 3 connection to the ISDN switch/network inactive	A switch protocol error exists, or (in the United States or Canada) a SPID assignment problem. There is either a switch protocol error, or (in the United States or Canada) a SPID assignment problem.
255	ISDN command processing error	The ISDN signaling code has encountered an error processing an ISDN action. ISDN adapter busy-wait and retry.

Upgrading Software over ISDN (H.320)

The software on your ViewStation FX or VS4000 can be upgraded through an H.320 video call from any other ViewStation FX or VS4000.

You can perform a software update to the far site over your V.35, PRI, or BRI line during a call. Updating works best at speeds of 512 Kbps and below.

Note   If you want to update your software over IP (H.323), refer to "Upgrading Software Using the PC," on page 118.

Caution   Do not power off the ViewStation FX or VS4000 during the software update process. If you turn off a ViewStation FX or VS4000 during the download process, your system reverts to its original software version.

Complete the following steps to upgrade a system:

1. Place a video call to the system you want to upgrade.

2. Select **System Info**>**Admin Setup**>**Security** and write down the passwords that appear on the **Security** screen of the site you want to upgrade.

3. On the site sending the software, select **System Info**>**Admin Setup**>**Software/Hardware**>**Update** to access the **Far Site Software Update** screen.

4. Highlight the **Start** icon and press the 🔴 button on the remote control.

5. Enter the passwords that you wrote down in Step 2; highlight the **Start** icon, and press the 🔴 button on the remote control to begin the upgrade process.

Once the software upgrade process is complete, your ViewStation FX or VS4000 automatically restarts.

G

BRI Technical Information

Quad BRI Network Interface Module

The Quad BRI is also called IMUX (for Inverse Multiplexer).The Quad BRI allows multi-line ISDN connections to be "muxed" together to create a higher bandwidth connection to the far-site device. Each ISDN line adds 128 Kbps to the possible operating line.

The BRI network interface module supports 4 S/T interfaces (network interface). Each interface consists of two B channels and one D channel.

The other side of the BRI network interface module has a peripheral interface (P-LINK interface).

Network Side of BRI Network Interface Module

The network interface side of the BRI has four RJ-45 ports. Each port has 2 LEDs that indicate the status of the network (see "LED Activity on the Quad BRI Network Interface Module," on page 253 below). The RJ-45 ports connect to standard CAT5 cables from the upstream PBX or telephone company switch.

Figure 7-1. Quad BRI Network Interface Module (Network side)

P-LINK Side of the BRI Network Interface Module

The P-LINK interface has one port. The figure below shows the peripheral link (P-LINK) side of the Quad BRI network interface module that connects to the ViewStation FX or VS4000.

Figure 7-2. Quad BRI Network Interface Module (P-LINK side)

Cables

P-LINK Cable

The Peripheral Link (P-LINK) cable is designed to only connect the BRI Network Interface Module to the FX or VS4000. This cable has a light blue keyed RJ-45 connector on one end and a green RJ-45 connector on the other. The light blue connector plugs into the light blue RJ-45 keyed port on the back of the ViewStation FX or VS4000. The green connector plugs into the P-LINK interface of the network interface module.

Note   For more information about connecting cables, refer to "Quad BRI Network Interface Setup," on page 14.

Network Cables

The network cables are standard CAT5 cables with the following pinout:

4 and 5 – Receive data from the upstream device into the BRI network interface module.

3 and 6 – Transmit data from the BRI network interface module to the upstream device.

A PBX might require a crossover cable to operate properly.

Note   For more information about connecting cables, refer to "Quad BRI Network Interface Setup," on page 14.

Network Connection

The BRI network interface module is designed to be customer premise equipment (CPE). This means the BRI network interface module does not generate a clock signal to the network. Instead, the module derives the clock from the upstream switch or from the PBX to which it is connected. This is sometimes referred to as slave mode.

LED Activity on the Quad BRI Network Interface Module

Status ISDN S/T LED	Description
Right LED (green)	Off = indicates that there is no connection to the switch or that there is no clock. On = the clock is synchronized with the switch.
Left LED (yellow)	Off = the interface card is in reset mode and booting. On = the interface card is active.
Both LEDs	On = indicates normal operation

Automatic Quad BRI Software Update

The Quad BRI is expected to have at least the same level of software version as the FX or VS4000. However, if, upon reboot, the ViewStation FX or VS4000 detects an older software version on the Quad BRI, it will automatically update the Quad BRI to the same software version. When this happens, the download is accompanied by an explanatory message. Do NOT turn off your system during the download process.

If the Quad BRI has a later software version than the ViewStation FX or VS4000, there is no automatic update process.

BRI Cables

RJ-45 to RJ-45 Clear Cable Diagram

Keyed RJ-45 to Standard RJ-45 Cable Diagram

MOLDED STRAIN RELIEF, BOTH ENDS

CONN. STANDARD RJ-45
COLOR: GREEN
SEE NOTE 1

PIN 8

P2

1

CABLE, 8 COND, 24 AWG,
BLACK PVC JACKET
CATEGORY 5, TWISTED PAIR
MINIMUN OF 2 TWISTS PER INCH.

FERRITE BEAD, 2X

SHRINK TUBING OR MOLDED, 2X

1.0" ±1/2"

20 FEET +/- 3"

1.0" ±1/2"

CONN. KEYED RJ-45
(POLYCOM# 1515-08823-001)
COLOR: LT BLUE
SEE NOTE 1

PIN 8

P1
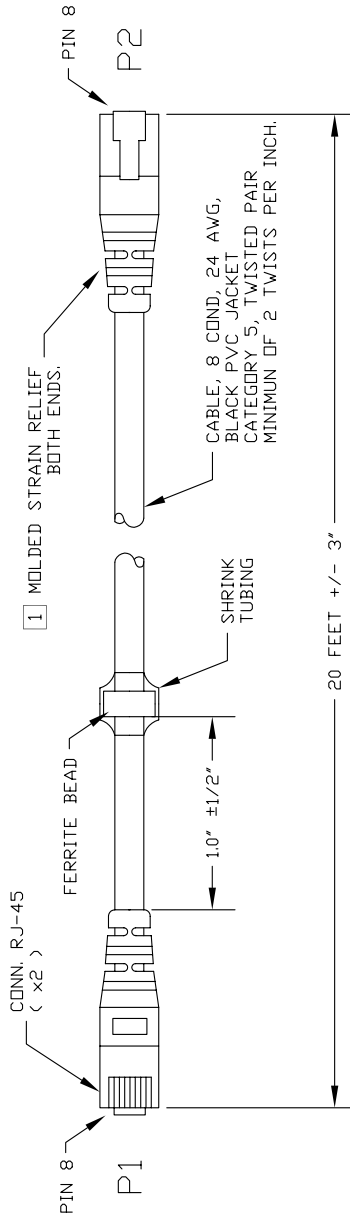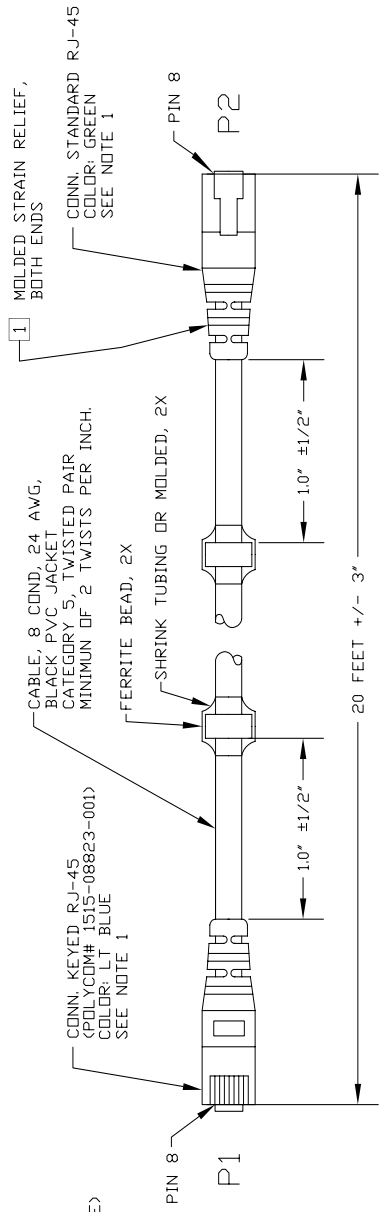
Pinout to the Keyed RJ-45 to Standard RJ-45 Cable

H
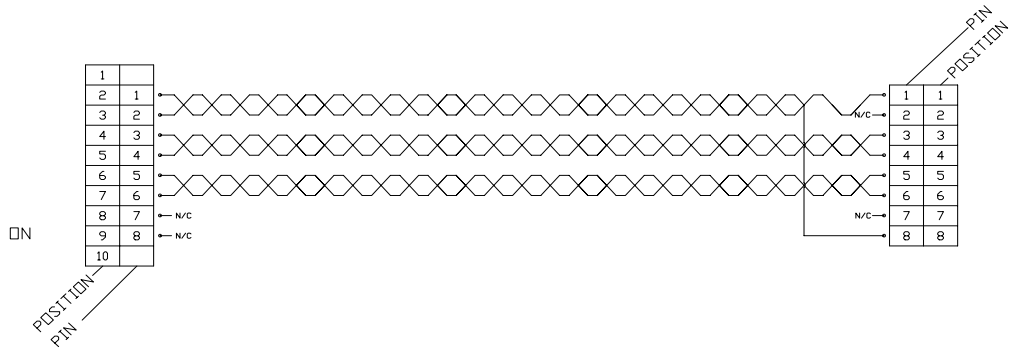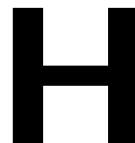
4-Monitor Support Table

Support Table

This table lists different monitors' configurations and the expected display results for each monitor in different scenarios.

Note	PIP	picture-in-picture
	CP	continuous presence
	Last talker	the last speaker or presenter appears full screen
	Main/UI	main screen of the FX or VS4000 User Interface

	PIP	Monitor 1	Monitor 2	Monitor 3	Monitor 4	One of FX VGA	R2D2 VGA
Boot Up Mode	None	Splash	Splash	Splash	Splash	JPEG	
Diagnostics Color Bar	None	Color Bar	Color Bar	Color Bar	Color Bar		
Single Monitor Mode							
No VGA							
Not in a Call							
Main/UI	Near	Main					
Graphic	None	Graphic					
In a pt-to-pt Call							
Call Connect	Near	Far					
Graphic	Far	Graphic					
Main/UI	Far	Main					
3-way Call							
Graphic	Last Talker	Graphic					
Main/UI	Last Talker	Main					
Discussion Mode	None	CP					
Presentation Mode	None	CP					
Full Screen	Near	Last Talker					
4-way Call							
Graphic	Last Talker	Graphic					
Main/UI	Last Talker	Main					
Discussion Mode	None	CP					
Presentation Mode	None	CP					
Full Screen	Near	Last Talker					
VGA							
Not in a Call							
Main/UI	Near	Main				unchg	unchg
Graphic	None	Near				Graphic	Graphic
In a pt-to-pt Call							
Call Connect	Near	Far				unchg	unchg
Graphic	Near	Far				Graphic	Graphic
Main/UI	Far	Main				unchg	unchg
3-way Call							
Graphic	Near	Far				Graphic	Graphic
Main/UI	Last Talker	Main				unchg	unchg
Discussion Mode	None	CP				unchg	unchg
Presentation Mode	None	CP				unchg	unchg
Full Screen	Near	Last Talker				unchg	unchg
4-way Call							
Graphic	None	CP				Graphic	Graphic
Main/UI	Last Talker	Main				unchg	unchg
Discussion Mode	None	CP				unchg	unchg
Presentation Mode	None	CP				unchg	unchg
Full Screen	Near	Last Talker				unchg	unchg
Sleep Mode	None	None				None	None
Dual Monitor Mode							
No VGA							
Not in a Call							
Main/UI	Near	Main	Near				
Graphic	None	Near	Graphic				
In a pt-to-pt Call							
Call Connect	None	Far	Near				
Graphic	Near	Far	Graphic				
Main/UI	Far	Main	Far				
3-way Call							
Graphic	None	CP	Graphic				

	Main/UI	Last Talker	Main	Last Talker			
	Discussion Mode	Near	Far	Far2			
	Presentation Mode	Near	Far	Far2			
	Full Screen	Near	Far	Far2			
4-way Call							
	Graphic	None	CP	Graphic			
	Main/UI	Last Talker	Main	Last Talker			
	Discussion Mode	None	CP	Near ?	Last Talker		
	Presentation Mode	None	CP	Near ?			
	Full Screen	None	Last Talker	Near			
VGA							
Not in a Call							
	Main/UI	Near	Main	Near			
	Graphic	None	Near	None		Graphic	Graphic
In a pt-to-pt Call							
	Call Connect	None	Far	Near			
	Graphic	None	Far	Near		Graphic	Graphic
	Main/UI	Far	Main	Far			
3-way Call							
	Graphic	Near	Far	Far2		Graphic	Graphic
	Main/UI	Last Talker	Main	Last Talker			
	Discussion Mode	Near	Far	Far2			
	Presentation Mode	Near	Far	Far2			
	Full Screen	Near	Far	Far2			
4-way Call							
	Graphic	None	CP	Last Talker		Graphic	Graphic
	Main/UI	Last Talker	Main	Last Talker			
	Discussion Mode	None	CP	Last Talker			
	Presentation Mode	None	CP	Last Talker			
	Full Screen	None	Last Talker	Near			
Three Monitor Mode							
No VGA							
Not in a Call							
	Main/UI	None	Main	Near	None		
	Graphic	None	Near	Graphic	None		
In a pt-to-pt Call							
	Call Connect	None	Far	Near	None		
	Graphic	None	Far	Graphic	Near		
	Main/UI	Far	Main	Near	Far		
3-way Call							
	Graphic	Near	Far	Graphic	Far2		
	Main/UI	Last Talker	Main	Far	Far2		
	Discussion Mode	None	Far	Near	Far2		
	Presentation Mode	None	Far	Near	Far2		
	Full Screen	None	Far	Near	Far2		
4-way Call							
	Graphic	None	CP	Graphic	Last Talker		
	Main/UI	Last Talker	Main	Far2	Far3		
	Discussion Mode	Near	Far	Far2	Far3		
	Presentation Mode	Near	Far	Far2	Far3		
	Full Screen	Near	Far	Far2	Far3		
VGA							
Not in a Call							
	Main/UI	None	Main	Near	None		
	Graphic	None	Near	None	None		Graphic	Graphic
In a pt-to-pt Call							
	Call Connect	None	Far	Near	None		
	Graphic	None	Far	Near	None		Graphic	Graphic
	Main/UI	Far	Main	Near	Far		

3-way Call							
Graphic	None	Far	Near	Far2		Graphic	Graphic
Main/UI	Last Talker	Main	Far	Far2			
Discussion Mode	None	Far	Near	Far2			
Presentation Mode	None	Far	Near	Far2			
Full Screen	None	Far	Near	Far2			
4-way Call							
Graphic	Near	Far	Far2	Far3		Graphic	Graphic
Main/UI	Last Talker	Main	Far2	Far3			
Discussion Mode	Near	Far	Far2	Far3			
Presentation Mode	Near	Far	Far2	Far3			
Full Screen	Near	Far	Far2	Far3			
Four Monitor Mode							
No VGA							
Not in a Call							
default (main)	None	Main	Near	None	None		
Graphic	None	Near	Graphic	None	None		
In a pt-to-pt Call							
Call Connect	None	Far	Near	None	None		
Graphic	None	Far	Graphic	Near	None		
Main/UI	Far	Main	Near	Far	None		
3-way Call							
Graphic	None	Far	Graphic	Far2	Near		
Main/UI	Last Talker	Main	Near	Far2	Far		
Discussion Mode	None	Far	Near	Far2	None		
Presentation Mode	None	Far	Near	Far2	None		
Full Screen	None	Far	Near	Far2	None		
4-way Call							
Graphic	Near	Far	Graphic	Far2	Far3		
Main/UI	Last Talker	Main	Far	Far2	Far3		
Discussion Mode	None	Far	Near	Far2	Far3		
Presentation Mode	None	Far	Near	Far2	Far3		
Full Screen	None	Far	Near	Far2	Far3		
VGA							
Not in a Call							
default (main)	None	Main	Near	None	None		
Graphic	None	Near	None	None	None	Graphic	Graphic
In a pt-to-pt Call							
Call Connect	None	Far	Near	None	None		
Graphic	None	Far	Near	None	None	Graphic	Graphic
Main/UI	Far	Main	Near	Far	None		
3-way Call							
Graphic	None	Far	Near	Far2	None	Graphic	Graphic
Main/UI	Last Talker	Main	Near	Far2	Far		
Discussion Mode	None	Far	Near	Far2	None		
Presentation Mode	None	Far	Near	Far2	None		
Full Screen	None	Far	Near	Far2	None		
4-way Call							
Graphic	None	Far	Near	Far2	Far3	Graphic	Graphic
Main/UI	Last Talker	Main	Near	Far2	Far3		
Discussion Mode	None	Far	Near	Far2	Far3		
Presentation Mode	None	Far	Near	Far2	Far3		
Full Screen	None	Far	Near	Far2	Far3		

Interoperability Information

H.320 Endpoint Interoperability

Manufacturer	Model	Version
Intel	TeamStation	5.0
PictureTel	600 Series	3.0.0.815
PictureTel	900 Series	3.0.0.815
PictureTel	Concorde	6.5
PictureTel	Swiftsite	1.20.03
Sony	Contact Host	4.20
Tandberg	1000	B3.2
Tandberg	2000	B3.2
Tandberg	6000	B3.2
Tandberg	800	B3.2
Tandberg	500	B3.2
VCON	Cruiser	4.01
VCON	Media Connect 8000	4.01
VTEL	Galaxy	2.1.0.064a
VTEL	TC	2.20

H.323 Endpoint Interoperability

Manufacturer	Model	Version
Intel	Proshare	5.1
Intel	TeamStation	4.0 and 5.0 (no audio with G.722)
Microsoft	NetMeeting	2.1
Microsoft	NetMeeting	3.0 (no application sharing, file transfer, or whiteboarding)
Microsoft	NetMeeting	3.01 ((no application sharing, file transfer, or whiteboarding)
PictureTel	550	
PictureTel	LiveLAN	3.1
PictureTel	600 Series	3.0.0.815
PictureTel	900 Series	3.0.0.815
Tandberg	1000	B3.1
Tandberg	2500	B3.1
Tandberg	6000	B3.1
Tandberg	800	B3.1
Tandberg	500	B3.1
VCON	Cruiser	4.01
VCON	Media Connect 8000	4.01
VCON	Falcon	0131.M03.D07.H15
VCON	Vigo	4.5
VTEL	Galaxy	2.1.0.064a

MCU H.320 Interoperability

Manufacturer	Model	Interoperability
Accord	MGC-100	chair control, far-end camera control, T.120
Lucent	Multi-Point Conferencing Unit	chair control far-end camera control, and T.120 do not work in cascaded calls
PictureTel	Montage 570, Prism	chair control, far-end camera control, T.120
VideoServer	Series 2000	chair control, far-end camera control, T.120
VTEL	SmartLink/W, SmartLink 1000 and 2000	chair control, far-end camera control, T.120

MCU H.323 Interoperability

Manufacturer	Model	Version
Accord	MGC-100	3.00.268
Whitepine	Meeting Point	5.0
Ezenia	MCS	1.2.2
Radvision	MCU	2.2.0.5

Gateway/Gatekeeper/T120 Server Interoperability

Manufacturer	Model	Version
Accord	MGC-100/gateway	3.00.268
Cisco	MCM Gatekeeper on the 3640 router	12.1 build 7
Whitepine	Meeting Point Gatekeeper	5.0
Ezenia	Gatekeeper	1.2.2
Radvision	L2W-323BRI Gateway/Gatekeeper	2.2.3.2.1
Radvision	L2W-323PRI Gateway/Gatekeeper	2.2.3.2.1
Radvision	MCU Gatekeeper	2.2.1.0.5
Radvision	NGK 200 Gatekeeper	1.0
Radvision	T120 Data Collaborator Server	1.07

J

Polycom OneDial™ and the Global Directory

This document describes configuration steps that let the end user easily dial other end users on the network. It shows how the administrator can hide the complexities of IP and ISDN dialing from the end user by configuring the endpoint for use with Polycom OneDial and the Global Directory.

The Different Dialing Methods Between Endpoints

To communicate from one endpoint to another, the preferred mechanism is to use either a human-readable name or a phone number. Use of an extension in addition to these is also acceptable. All the mechanisms used for dialing, however, need to be broken down to the basic dialing formats: IP address, ISDN number and/or extension. After being broken down, they fall into one of the following dial scenarios:

- **IP address**—This dialing format is used for:
  - private dialing
  - public dialing where both endpoints are allowed access through their respective firewalls
- **IP address + extension**—This dialing format is used for:
  - public dialing where the receiving endpoint is behind a firewall Gateway or proxy
- **Phone number**—This dialing format is used for:
  - dialing an endpoint with ISDN natively
  - dialing through a Gateway where the number dialed is unique to an endpoint (Direct Inward Dial (DID))
- **Phone number + extension**—This dialing format is used for:
  - dialing through a Gateway where the endpoint dialed does not have its own phone number and must be specified by using a extension.

Configuring the Endpoints to Talk to Each Other

In order for endpoints to communicate with each other, they need to have a common communication mechanism. This means that both endpoints need to be addressable via IP or via ISDN. If one endpoint is only addressable via IP and another only by ISDN, then these two endpoints will not be able to communicate.

H.320 Endpoints (Endpoints with native ISDN)

In order to configure this endpoint to communicate with both H.320 and H.323 endpoints, the **Call Preference** screen (**System Info**>**Admin Setup**>**Video Network**>**Call Preference**) must be configured to specify the allowed types of calls to be both H.320 and H.323 (**ISDN Video Calls** and **LAN/Internet Calls** options must be enabled).

H.323 Endpoints (Endpoints without native ISDN)

1. In order to configure this H.323 endpoint to communicate with H.320 endpoints, a Gatekeeper must be specified as follows:

    a. In the **Gateway & Gatekeeper** screen (System Info>Admin Setup>LAN/H.323>H.323>Gateway & Gatekeeper), enter the IP address in the **Gatekeeper IP Address** field or use **Auto** (discovery).

    b. Configure other information in the **Gateway & Gatekeeper** screen, as desired.

2. In order for H.320 endpoints to dial this H.323 endpoint, specify an ISDN number for this H.323 endpoint as follows:

    a. From the **Gateway & Gatekeeper** screen, select the **Gateway Number** screen (System Info>Admin Setup> LAN/H.323>H.323>Gateway & Gatekeeper>Gateway Number**)**.

    b. This ISDN number will either be a **Direct Inward Dial (DID)** number that will reach this H.323 endpoint without the user having to dial an extension, or it will be a main Gateway number plus an extension (**Number+Extension** option) that must be dialed.

Direct Inward Dial— When using DID, the number of digits in the DID is that portion of the full DID that the Gateway will be given from the ISDN service provider as the Called Party Line Identifier. This, in turn, will be passed to the Gatekeeper for address resolution. The endpoint needs to register this portion of the DID as an E.164 alias with the Gatekeeper in order for this to work.

When using DID, the number of digits in the extension is used for short number dialing within an enterprise and needs only be set to enable this feature. If it is set, then this portion of the DID will register with the Gatekeeper for address resolution within the enterprise.

3. In order for this H.323 endpoint to dial H.320 endpoints:

    a. In the **Gateway** screen (System Info>Admin Setup>LAN/H.323>H.323>Gateway & Gatekeeper>Gateway Setup), configure the prefixes and suffixes that are used by the Gateway. These prefixes will be used by the Gatekeeper to route the call through an available Gateway.

Configuring the Address Book to Show the Proper Entries

Now that this endpoint is configured to talk to both H.320 and H.323 endpoints, the Global Directory needs to be configured.

1. In the **Global Address** (Server) screen (System Info>Admin Setup>LAN/H.323>H.323>Global Address>Server), enter the address of the Global Directory Server in the **Server IP Address** field.

    Configure other information in the **Global Address** screen, as desired.

2. In the **Global Address Book Preferences** screen (System Info>Admin Setup>LAN/H.323>H.323>Global Address> Preferences), configure the following settings:

    a. Specify the types of calls that this endpoint is allowed to place using the Global Directory. This is done by selecting the appropriate options (H.320 and/or H.323) under **Show Addresses in Address Book**.

    b. Configure the **Preferred alias (E.164)** option as specified by your network administrator. This E.164 alias can be one of several and is typically used to route calls through a hierarchical Gatekeeper deployment.

    c. In the **Advanced Preferences** screen (System Info>Admin Setup>LAN/H.323>H.323>Global Address>Preferences> Advanced Preferences), select the **Primary** and **Secondary Call Type Choice** options.

Note   These options are only available if the version of the GMS used for the Global Address Book Server is version 2.5 or later.

    d. Back in the **Global Address Book Preferences** screen, configure the **Maximum Line Speeds for Global Addresses**, as desired.

Endpoint Information Needed by the Global Directory

The Global Directory collects the following information from this endpoint:

- **The IP address**—Configured in the LAN/Intranet section (LAN & Intranet screen) on the endpoint.
- **The H.323 Extension (E.164 Alias) for this endpoint**—Configured in the Global Address -> Preferences section on the endpoint as the preferred E.164 Alias.
- **The ISDN number**—When the endpoint supports ISDN natively, it is the native ISDN number.

 On H.323 only systems, it is the Gateway number used to dial this endpoint. This number is configured in the Gateway Number screen on the endpoint (System Info>AdminSetup>LAN/H.323> H.323>Gatekeeper & Gateway>Gateway Number).

How the Dialing Works When Using the Global Directory

The following describes exactly what is happening when the endpoint is viewing and selecting an entry from the Global Directory to dial. It is assumed that the Global Directory Preferences have already been configured to allow for this endpoint to view the specified address types.

- **IP Address Entry**

- If this endpoint is registered with a Gatekeeper: this endpoint will see the **H.323 Extension** of the remote endpoint. It will also dial this **H.323 Extension** by sending it to the Gatekeeper for address resolution.

- If this endpoint is not registered with a Gatekeeper: This endpoint will see the IP address of the remote endpoint. It will also dial this IP address directly to connect.

- **ISDN Address Entry** (from an endpoint with ISDN natively)

  - If the **default outbound call route** is set to **ISDN** in the **Gatekeeper & Gateway** screen (System Info>AdminSetup >LAN/H.323>H.323>Gatekeeper & Gateway), this endpoint will show the ISDN number (plus extension if specified) of the remote endpoint. It will also dial this ISDN number (plus extension if specified) directly through the native ISDN lines on this endpoint.

  - In all other cases: this endpoint will show the ISDN number (plus extension if specified) of the remote endpoint. It will dial the Gateway Prefix for specified bit rate, as configured in the **Gateway Setup** screen (System Info> Admin Setup>LAN/H.323>H.323>Gatekeeper & Gateway>Gateway Setup), plus the ISDN number, plus the Gateway Suffix for the same bit rate as an IP call by sending this address (plus the extension if specified) to the Gatekeeper for address resolution.

    Note   The Gatekeeper will then route the call through an available Gateway to connect to the remote endpoint.

- **ISDN Address Entry** (from an endpoint without ISDN natively)

  - This endpoint will show the ISDN number (plus extension if specified) for the remote endpoint. It will dial the Gateway Prefix for specified bit rate as configured in the he **Gateway Setup** screen (System Info>AdminSetup> LAN/H.323>H.323>Gatekeeper & Gateway>Gateway Setup), plus the ISDN number, plus the Gateway Suffix for the same bit rate as an IP call by sending this address (plus the extension if specified) to the Gatekeeper for address resolution.

    Note   The Gatekeeper will then route the call through an available Gateway to connect to the remote endpoint.

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